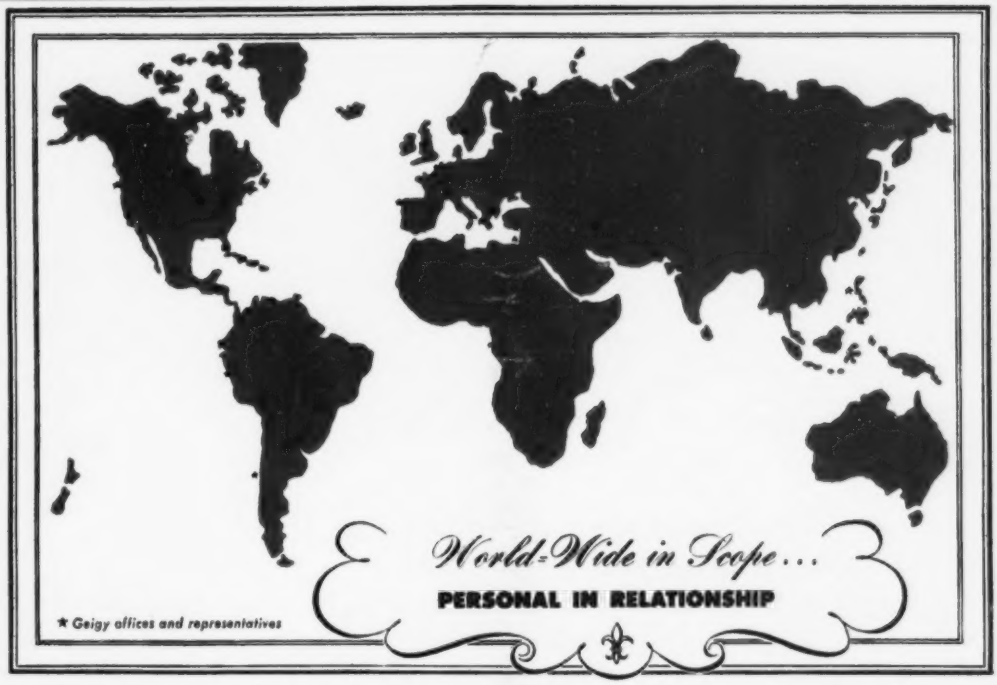
PAPER TRADE
JOURNAL

May 21, 1954

- *First Details of Union Bag's Expansion*
- *What Is Paper Honeycomb?*



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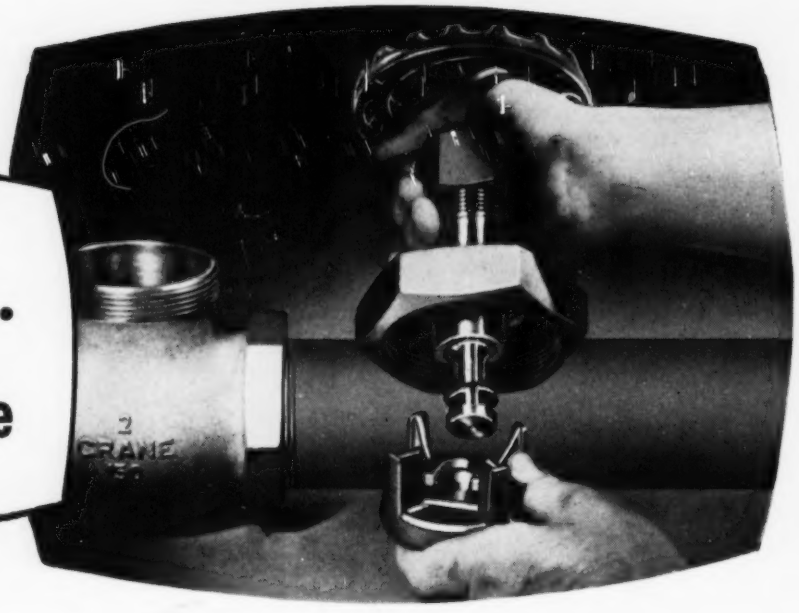
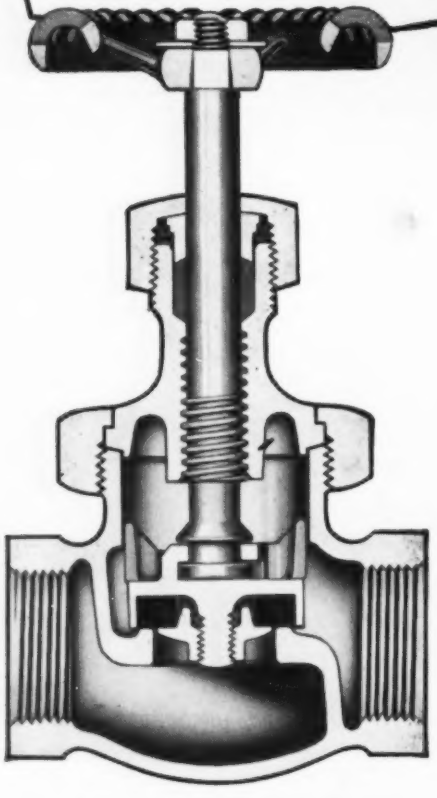
A "New" Valve





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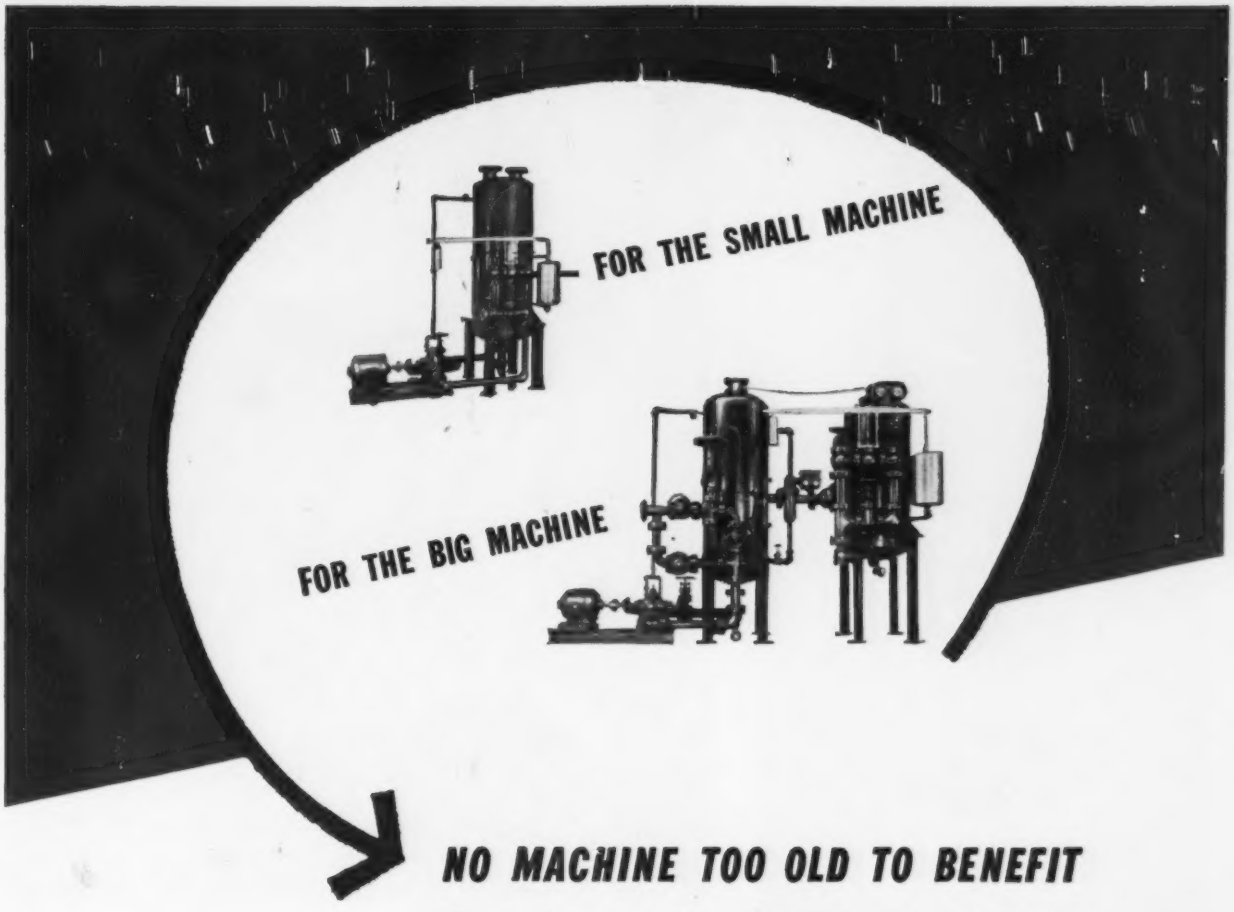

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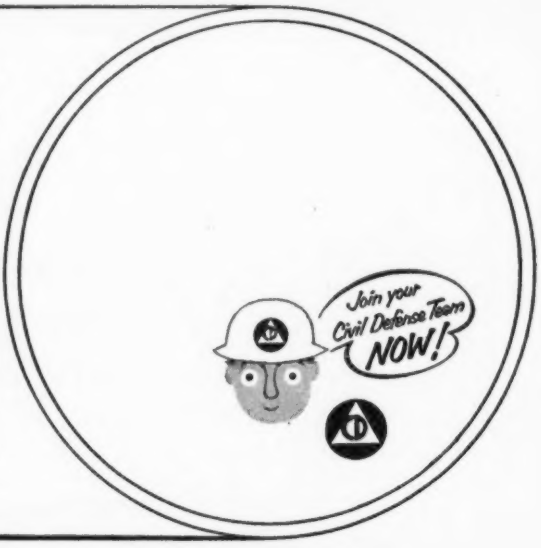

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REMEMBER THESE DATES

MAY 23-25: Spring Meeting, National Paperboard Assn., Grove Park Inn, Asheville, N. C.

MAY 24-26: TAPPI Coating Conference, Poland Spring House, Poland Springs, Maine.

JUNE 14-17: Summer Meeting, Technical Section C.P.P.A., Empress Hotel, Victoria, B.C., Canada.

JUNE 21-23: National Meeting American Pulp and Paper Mill Superintendents Assn., Sheraton-Mount Royal Hotel, Montreal, Que.

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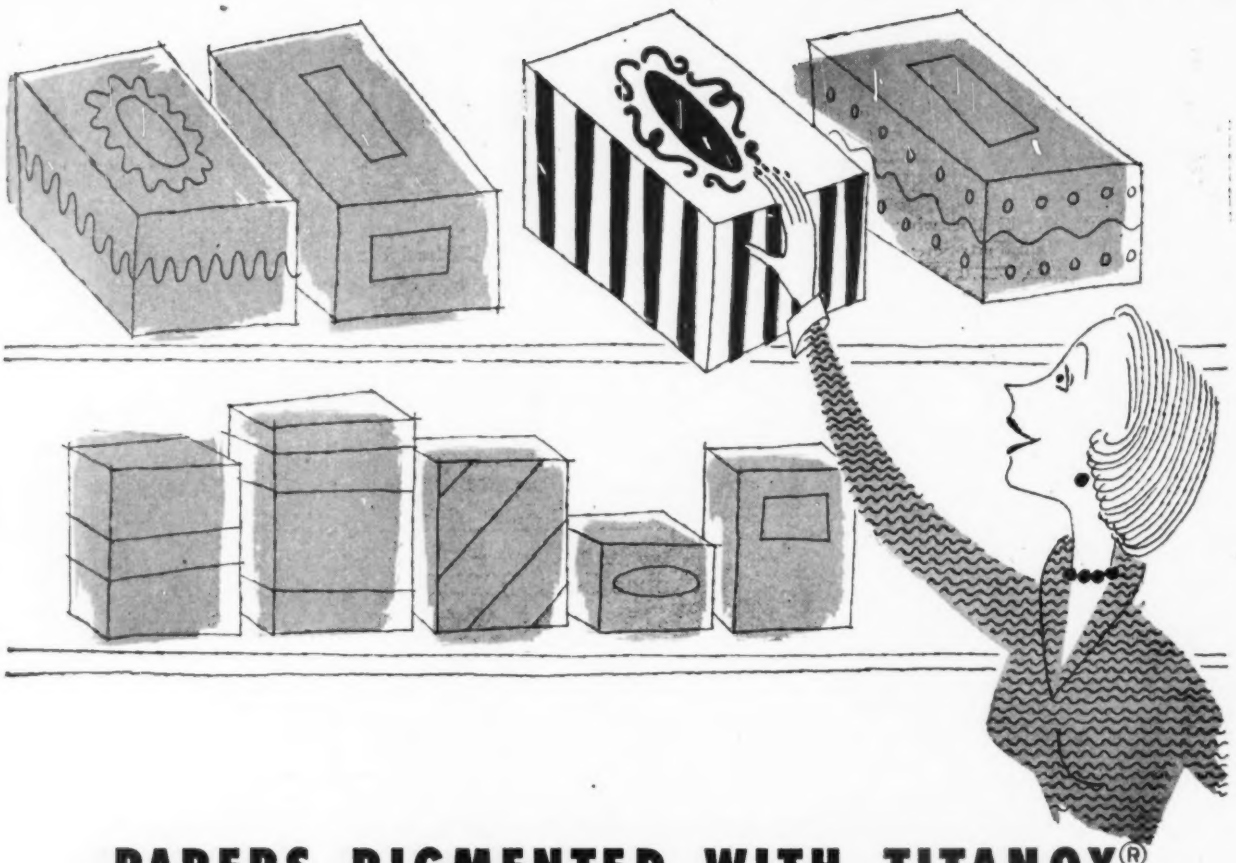

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PAPER TRADE JOURNAL

TRENDS

No Weakening Seen In Sulphite Bond Prices

Contrary to business press headlines, sulphite bond papers have not been included in the bond price reductions, neither is any cut in the making. Mill sources here are hinting that a minor price rise is looming.

Because of the 1 cent per pound adjustments in rag content papers—bonds, ledgers, index, etc. — consumers were looking for sulphites to follow. Rumors had even named the date. Last week, a misleading headline in the business press heightened this market impression by a half-fact: that the mills have cut prices for bond papers, when only *rag* was reported in the text.

No Price Cut Warranted. Sales executives here say there is definitely nothing in today's picture to warrant a price cut in sulphite writing papers.

On the whole, this group of mills is running close to capacity with a good order backlog; moreover costs continue high.

March Output 8.8 Percent Ahead. Production records lend support to these contentions. Census figures for March show chemical woodpulp writing papers output at 81,339 tons, compared with 74,754 in March, 1953, for an 8.8 percent gain. For the months of January and February, the gain was fractional.

According to the Monthly Statistical Summary of the American Paper & Pulp Assn., March, 1954, fine papers were 4.2 percent ahead of year-ago totals.

"Makers of fine paper continued to improve their position in March as production of these papers rose to 120,000 tons, the largest tonnage produced in a single month since March, 1952," said John H. Vogel, Industry Economist, in his commentary.

"Thus far this year output at 325,000 tons is about 4 percent greater than the first quarter of 1953. Although new orders have not quite kept pace with production, the backlog of orders at about 60,000 tons was the largest since September of last year and only slightly below that of the end of March, 1953."

No Element of Weakness. From the wholesalers also come reports of high level business for March; several report an all-time high for the month.

U. S. Production of Paper and Board

First Quarter, 1954 and Relationship to 1953-1952-1951 First Quarters

	Production 1st Quarter 1954	Percent Change From 1st Quarter 1953	1952	1951
Group A—Printing and Similar Papers	899,056	+0.4	— 1.0	+ 1.1
B—Fine Papers	325,338	+4.2	—12.8	— 0.4
C—Coarse Papers	873,296	+2.5	— 5.2	— 0.1
D—Tissue Papers	401,934	+8.5	+14.4	+ 6.7
E—Miscellaneous Papers	129,192	—7.5	— 8.4	— 4.6
F—Total Groups A-E	2,628,816	+2.3	— 2.4	+ 0.7
Newsprint	280,385	+7.5	— 0.1	+ 3.3
Building Paper	286,320	—0.9	— 0.3	—25.1
Total Paper	3,195,521	+2.4	— 2.0	— 2.4
Paperboard	2,970,754	—3.9	+11.7	— 6.3
Building Board	326,956	—9.1	+11.9	+14.0
Total Board	3,297,710	—4.4	+12.7	— 3.4
Grand Total	6,493,231	—1.2	+ 5.0	— 4.6

Source:—American Paper & Pulp Assn.

Under current conditions, there is absolutely no element of weakness in the sulphite writing field; and no indication that price reduction is even being considered.

Printing Papers Hold Gains. Reports of sustained demand for all grades of printing and publication papers are supported by records for March and for the quarter.

Census figures show a 13 percent increase in groundwood papers for March over year ago totals; 6 percent gain for machine coateds, a slight loss for uncoated book, a gain for book converting, for a net March gain for the printing paper group of close to 2 percent. For the quarter, APPA figures show a change of plus 0.4 percent from 1953's first quarter.

The volume of new orders is reportedly about 15 percent less than at the close of March, 1953. (See accompanying table.)

Moderate Trading In Gum Rosin Market

Domestic trading in gum rosins was moderate during the week ended May 7 with minor changes in price. Sales of K, M, N grades made up approximately 50 percent of the 5371 drum equivalents. In addition, tank car sales of hot rosin for the week totaled 692 drum equivalents mostly K or better, according to USDA Naval Stores Market News.

Weighted Average Prices. Summarizing April market activity in gum rosins, the *News* describes it as active and irregularly lower.

The mixed price situation which prevailed during most of the month was held to be primarily due to whether sales were made on immediate, prompt or more forward shipment bases. Toward the close, the trend was definitely downward.

Compared with April, 1953, average prices of practically all classes and grades — excepting medium grade hot rosin — were substantially higher on well above twice the volume of sales, said the USDA market reporter.

The weighted average price for 2230 drums of K, M, N grades, f.o.b. plants, was $7.61, compared with $7.69 in the earlier month. Sales according to grades were:

Drums, f.o.b. — 865 K, 755 M, 610 N; drums, export — 1706 K, 598 N, 261 M; 100-lb. bags — 7360 N, 6550 K, 1900 M; tank cars, drum equivalents — 3106 K or better, 1120 M, 532 N.

John L. Lewis, UMWA And Those Golden Eggs

Loss to Oil 1.5 Million Tons. According to the Anthracite Institute Bulletin recently released, the anthracite industry last year lost a market estimated at 1.5 million tons to consumers now using oil. The oil industry is reported to have chalked up a 10 percent gain in installations during each of the past two years. As a whole, the bulletin said, 281,000 installations, or 63 percent of the total, represented conversions to oil.

UMWA Blames Imports. The plight of the coal industry is being blamed on foreign residual oil imports which Mr. Lewis claims has displaced more than 30 million tons of coal production in a single year and caused unemployment of thousands of miners. To him it is "mandatory that the American coal industry be kept strong and efficient in order to meet the fuel and energy needs of our nation and of our allies."

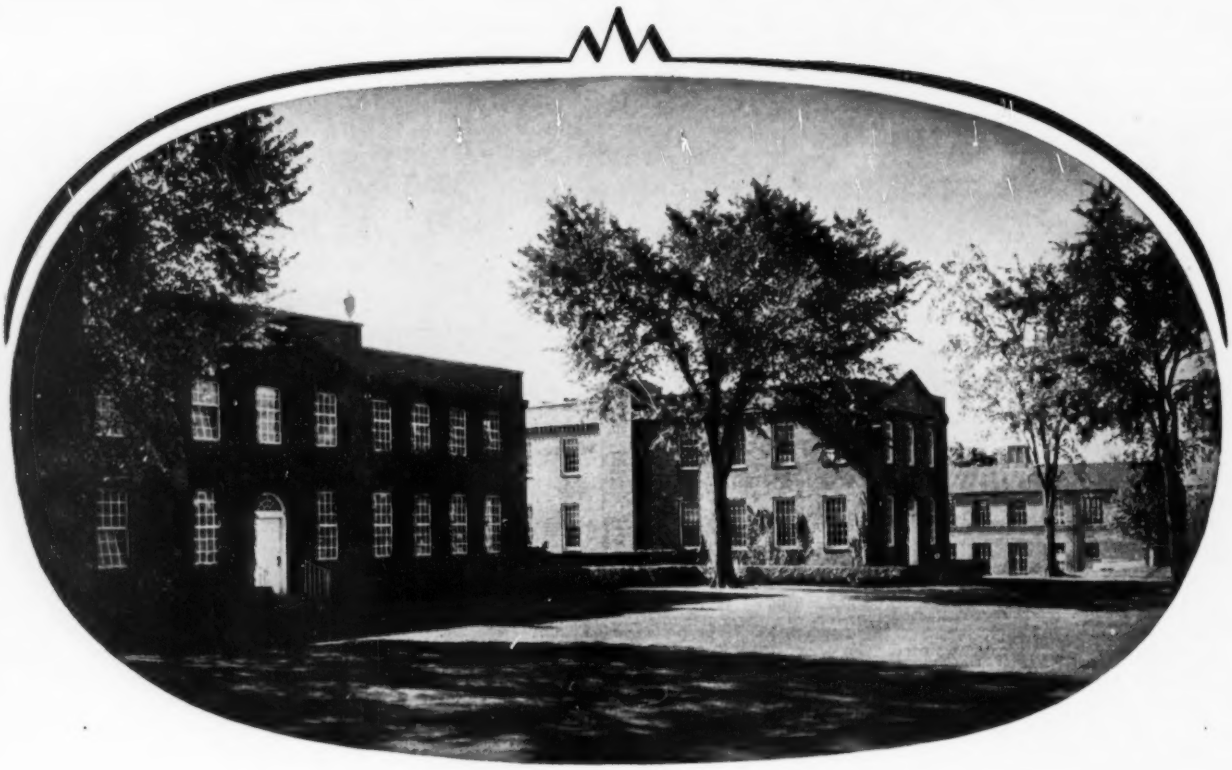
To all appearances, Mr. Lewis killed the goose and consumers have cooked it —with oil.

—E.P.N.

Paperboard Production (Tons)*

	May 8 1954	May 1 1954	May 9 1953
Production	237,514	230,314	240,205
New Orders	298,213	251,496	291,615
Unfilled Orders	429,184	369,140	588,917
% of Activity	87	87	94

* Source: National Paperboard Assn.



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State Boards Discuss Upper Peninsula Paper Mill Problem

Two state agencies with widely-different objectives are going to confer regarding the economic conditions in Michigan's Upper Peninsula.

One is the State Water Resources Commission, which is charged by law with safeguarding lakes and streams from pollution dangerous to fish, animals and humans. The other is Economic Development Commission, which is concerned primarily with getting new industries into Michigan, and with keeping those already located here.

It is expected to be a friendly conference May 27, even though the two commissions work at what may seem like cross purposes. The session will take place during a two-day WRC meeting at Haven Hill, the State Conservation Department lodge near Milford. Plans call for three members of the Economic Development Commission and probably three from its industrial advisory committee to sit down with the seven-man WRC and talk over mutual problems.

What apparently brought the matter to a head is a contemplated change in process by Manistique Pulp and Paper Co. which might result in a considerable increase in its pollution loading. The mill at Manistique has been dumping waste from its ground-wood pulp production into the river of the same name, at the rate of about 1,700 pounds of oxygen-demanding material a day. That is the equivalent of approximately 10,000 population. WRC engineers have considered that the river can handle such a loading. Now the Manistique Co. plans to convert to the more troublesome semi-chemical pulping operation and produce bleached pulp from aspen.

On the other end of the scale, the Michigan Economic Development Commission is interested in fostering this move on the part of the Manistique Pulp & Paper Co. to increase its productive facilities and expand into new markets.

The engineers of the Michigan Water Resources Commission have estimated on the basis of the experience of other Michigan paper mills that this proposed changeover in pulping at Manistique may produce a pollution loading increase that might seriously contaminate the waters of Lake Michigan.

Members of the Water Resources Commission have expressed willingness to discuss the problem.

One Upper Peninsula paper mill, the National Container Corp. at Ontonagon, recently closed down. It had been using soft wood logs.

There has been talk of seeking a paper mill in the Keweenaw Bay area, near Pequaming, and also in the St. Ignace section.

So, the two agencies will see what can be done about settling the differences in their objectives.

Gardner Cuts Pollution By Reuse of Water

Gardner Board and Carton Co. has taken the initial step in a water pollution control system for one of its two paperboard mills in Middletown, Ohio.

The company's directors have authorized $35,000 for preliminary work in setting up a system of reusing water in making paperboard on the two machines at its Mill No. 1.

The complete plan will cost an estimated $150,000 and will take several years to finish.

Gardner's plan of increasing reuse of its water is in line with the Ohio Water Pollution Control Board's twin program of water pollution control and water conservation.

Mill No. 1's waste goes directly into the Miami River because sewer lines have never been constructed by the city to the mill area.

The company, in obtaining a temporary permit to use the river, already has outlined to the state the further steps it intends to make in a program for Mill No. 1.

The first phase, for which the $35,000 has been ticketed, involved installation of filters in the water recirculation system. This will remove many of the undissolved wastes.

Paper and Board Production

According to the American Paper and Pulp Association, the ratio of United States paper production to mill capacity for the week ending May 8, 1954, was 94.6 percent, compared with 90.9 percent revised, for the preceding week. The ratio was 94.6 percent for the corresponding week a year ago. Mills producing newsprint exclusively are not included.

The paperboard production ratio for the week ending May 8, 1954, was 87 percent, compared with 87 percent for the preceding week, and 94 for the corresponding week last year.

(Detailed statistics on page 42.)

Nepco Starts $300,000 Expansion

The Nekoosa-Edwards Paper Co., Port Edwards, Wis., has poured foundations for a $300,000 extension of its mill finishing room at Nekoosa.

The 304 by 110 ft. cement structure, which includes a ground floor and basement, will provide facilities for extension of existing paper finishing lines and paper storage. A 200 ft. train shed with two tracks and a loading dock to accommodate three trucks are included in the plans.

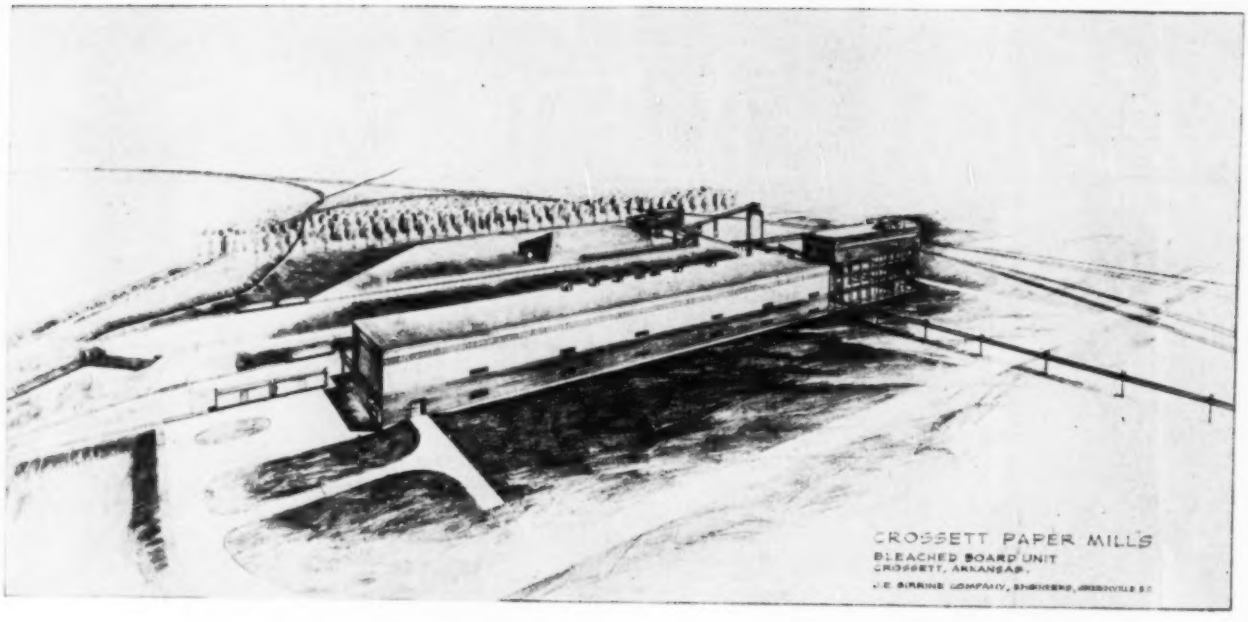
Completion is scheduled for mid-November. The building will be erected by the Edwin H. Meyer Construction Co., Neenah.

Three Locomotives Sub for Boiler at Scott

Three Pennsylvania Railroad locomotives recently were pressed into service by the Scott Paper Co. to provide steam-making machines while a boiler was being repaired, according to the Philadelphia, Pa., *Bulletin*.

The locomotives were brought to a railroad siding at the plant at Front and Market sts., Chester, Pa., after the company's biggest boiler had to be shut down.

John McNichol, plant manager, said the locomotives were used for three weeks until repairs to the boiler were completed. Without their help it would have been necessary to cut the paper-making operations and reduce the working schedule in the finishing department.



First Details of Crossett's New Pulp and Board Mill

D. G. Moon

J. E. Sirrine Co., Engineers, Greenville, S.C.

The Crossett Cos., are currently building a new unit at their plant in Crossett, Ark. The original plant, a kraft pulp and paper mill built in 1937, now has a capacity of 450 tons per day. The new addition, a semi-chemical pulp mill and a cylinder board mill to make food boards was planned to make use of considerable quantities of hardwoods growing on Crossett's large land and timber holdings.

While the present kraft mill uses only pine, the new mill will use a large percentage of hardwoods which will be pulped by the neutral sulphite semi-chemical process.

After the Crossett organization had conducted research for a number of years in the utilization of hardwoods in paper making, J. E. Sirrine Company, of Greenville, S. C., was retained as consultant to assist with the preliminary work of preparing cost estimates, plans, flow sheets, and report prior to final approval by the board of Directors to proceed with the project. In July, 1953 this work was approved and Sirrine was commissioned to start actual design without delay.

This new unit is being built completely separate from the present kraft mill but will be operated as an integral part of Crossett Paper Mills, the Paper Division of the Crossett Co. The two mills will be connected by pipe lines since the new mill will use a furnish of mixed pine and hardwood pulps in the production of bleached food container board and related products. The initial production will total 150 tons of finished product per day.

NSSC spent liquor will be returned to the kraft mill and blended with the kraft liquor ahead of the evaporators.

The new unit is to be located southwest of the existing mill, and will consist of the following facilities: Wood Yard, Chip Preparation Area, Digester, Refining, Washing, and Screening, Bleach Plant, Stock Preparation, Machine Room, Finishing & Shipping, Chemical Area, (which will include chemical handling such as unloading, storing, etc.; as well as chlorine dioxide, neutral sulphite liquor and sodium hypochlorite manufacturing), and Water Supply and Waste Disposal.

The wood yard is to include the necessary log conveyors of the chain type to move logs from storage or unloading areas into the 12 ft. diameter by 45 ft. fibre making process drum type log barker. Sorting of the barked wood is to be provided between the discharge of the drum and the chipper on a multiple strand flat chain conveyor, with a return conveyor to the inlet of the barking drum for rejected wood. Bark will be removed from under the barking drum by a rubber belt conveyor. Conveyors are being supplied by Link Belt.

One of the present 96 in. chippers at the kraft mill is being replaced by a Carthage 104 inch chipper; the 96 inch chipper will be used for the initial semi-chemical chip production. Chips are to be conveyed by a rubber belt from the chipper to a small surge hopper where they will be fed to an Orville Simpson chip screen by a rotary (Star) feeder. Rejects from the screen will be

crushed in a Waterville Iron Works hammermill type crusher and returned to the screen by a pneumatic conveying system. Sawdust will also be removed from the wood room by a similar system.

Accepted chips are to be conveyed by a rubber belt to storage in a structural tile silo. A table type rotary feeder is to be installed to remove the chips from storage, depositing them onto a rubber belt conveying system for transfer to the digester when charging. An electro-magnet is to be provided above the belt conveyor to remove ferrous metals prior to the cooking process.

A Builders-Providence Inc, continuous weighing scale with integrator, is to be used to weigh each charge of chips. The proper electrical controls and interlocks are to be used so that the entire charging operation will be push button controlled from the digester operating floor.

The 3500 cu. ft. stationary digester supplied by Chicago Bridge & Iron Co. will be stainless steel clad material and of sufficient size to produce necessary amount of bleached neutral sulphite semi-chemical pulp. The most suitable types of instruments are to be included for accurate cooking control, remote controlled hydraulically operated blow valve, vertical blow tank with bottom agitator, pumps, etc.

Refining in the primary stage will be accomplished by a large Bauer double rotating disc refiner. The refined stock will be pumped directly to Impco two-stage, valveless type countercurrent washers of all stainless steel construction. The washed stock in turn will be passed through a secondary Bauer refiner (a duplicate of the primary) before the screening operation, which will consist initially of two rotary screens.

Accepted pulp from the screens will be further cleaned by the use of Bauer centrifugal separators for removing dirt specks, sand, or large sheaves. Discharge of this stock from the cleaners will go directly to an Impco valveless thickener, with belt conveyor carrying the thickened stock through a heating mixer to a structural tile, high density storage chest of 120 tons capacity. The thickener is a duplicate of the washers, and is to be so arranged as to become a third stage brown stock washer when production demands additional capacity.

Kraft pulp, after washing and screening at the existing kraft mill, will be pumped at 3 per cent consistency to a thickener and high density storage tank at the new mill, where it will be bleached intermittently and stored in conjunction with NSSC operation.

The bleach plant utilizes valveless washers, one low density chlorination stage, and three high density stages, for caustic, hypo, and chlorine dioxide (Mathieson Chemical Corp.); and may be operated to produce pulps of low or very high brightness and high strength on either the hardwood NSSC pulp or kraft. High density storage facilities are to be provided for three grades of pulps from the bleach plant. Rubber belts will be furnished to convey pulps from the washer discharge to storage.

Stock preparation for this mill will be rather complicated with the use of three separate raw stocks, plus broke, as well as facilities for blending, coloring, sizing, etc. The refining is to be done in two stages: first by hydrofiners and second by Shartle jordans. Pulp from the high density storage towers will be pumped through 6-ton pile surge chests to the refiners; and passed then to either a blending tank or three other tile chests for delivery to the machine.

Board Machine

The 216 in. Beloit cylinder machine is to be ultramodern and with the latest innovations incorporated in the design of the vats, of which there will be five, initially with space left for three additional in the future. These vats are arranged for 60 in. diameter by 216 in. face molds and will be provided with special flow chambers to permit operating any cylinder as uniflow or counterflow, with or without overflow. The direction of the flow into the vat will be accomplished without alteration to the entering or overflow chambers through a special piping arrangements and a four-way valve. Vat circles can be adjusted without shutting down the machine.

The flow distributors will consist of stainless steel spreading chambers on each side of and for the full width of the vat. A series of valves between the spreading chamber and the entrance flow passage to the vat will allow for adjustments as a group or individually. Each vat will be provided with proportioning devices and arrangements for deaerating white paper by passage through tile collecting boxes at the back of the machine, each of which will connect to a fan pump of 12,000 gpm capacity. In addition to 24 in. couch rolls for each of the cylinders, the machine will have a 36 in. suction drum press, with two plain primary presses following. There will also be one 34-in. suction primary press and a first plain type main press. The second press will be of the inverted suction type with the plain roll of hard rubber, and will be followed by six 60 in. paper dryers ahead of the heavy duty plain type third press..

After the third press, there will be sixteen 60 in. dryers followed by a breaker stack and the third section of sixteen 60 in. dryers leading to a size press, which will be followed by eight 60 in. after-dryers. All of these dryers will be suitable for 75 lbs. of steam pressure.

The first section between the presses will have one top return felt dryer. The second section will have two Feeney dryers and one felt dryer on top. The third section will be provided with one top and one Feeney felt dryer. The fourth section will have one return felt dryer. No felt equipment is provided for bottom dryers.

Following the fourth dryer section will be two 9-roll calender stacks with 20 in. top rolls, 16 in. intermediate, and 34 in. bottom rolls.

Following the calender stack will be a reel and then a cutter, with the winder placed far enough ahead of the latter to allow for transportation of sheets to the finishing room.

For driving the machine a Beloit differential drive will be used, with a steam turbine as prime mover and helper motors on the wet end. The turbine will receive steam delivered from the present boiler house at a minimum pressure of 350 psi, so as to allow for pressure drops in the line between it and the generating point, which will be at 400 psi.

Kraft Mill

Some additions to the present kraft mill will be necessary in order to furnish the kraft pulp for the new unit. These will consist mainly of a new set of Swenson evaporators to take care of the removal of 140,000 lbs. of water per hour, two additional Chicago Bridge & Iron 2800 cu. ft. carbon steel digesters, with some changes to the kraft stock chests and to the causticizing plant; as well as the addition of a fibre making process 12 by 45 drum barker, a new Carthage chipper and screen for the present wood room. The existing kraft mill had already under way the installation of a new bark boiler and the hardwood unit program will involve the further addition of water walls to other of the existing boilers.

Miscellaneous

Water for the new mill is to be supplied by nine adjoining wells. Waste from the new mill will be combined with that from the existing mill and discharged into an impounding basin with an area of 160 acres.

Sandy Hill Iron and Brass Works are supplying the transfer pumps. Motors for the new mill are being furnished by Reliance Electric and Engineering Co.

Proposes Investigation of Calcasieu Strike Problem

A North Louisiana lawmaker said last week that he will ask a legislative investigation of the violence-torn papermill strike of nearly two years at Calcasieu Paper Co., Elizabeth.

Representative T. T. Fields of Union Parish said, "I want to see where the fault lies for the months and months of violence that has plagued central Louisiana."

Rep. Fields said he expects to introduce this week a resolution proposing an eight-man legislative committee with power to subpoena witnesses.

"We should have a fair and impartial investigation of all that trouble," he said. His parish on the Arkansas border has neither industry nor labor unions.

Rep. Fields disclosed his move while the Legislature awaits one of its hottest controversies—introduction of a right to work bill banning compulsory union membership. It is backed by agricultural interests.

The Legislature, according to past performances, usually has been cool to proposals for special investigative committees.

The annual convention of the Southern Association of Pulp and Paper Industry unions went on record as being in sympathy with the unions in the Elizabeth, La., strike.

Representatives of about 45,000 Southern pulp and paper workers in three AFL unions passed a resolution to that effect May 9.

The delegates also passed a resolution saying they were against all "right-to-work" bills in the South. They also said they would assist in promoting legislation favorable to labor.

Pickets Slow Building At Two Florida Mills

Pickets were on the march last week in front of construction at International Paper Co., Panama City, and St. Joe Paper Co. in Port St. Joe, Fla.

Construction work at both plants was halted but production in the mills proper continued as usual. Picket lines at Panama City were posted by International Hod Carriers Local 277 following failure of the union officials and representatives of International Paper and Austin Construction Co. to agree to terms of a proposed increase for laborers.

The union is asking a 20 cent an hour increase. T. J. Guthrie, union business agent, said following a three-hour session with International and Austin. Officials said agreement had been reached on everything except the question of retroactive pay. Austin is a contractor on the St. Joe expansion project.

BROWN CO. FIELD DAY ATTRACTS 300 BOY SCOUTS who recently exerted at least one week's energy during a busy Saturday afternoon at a Brown Co. Conservation Field Day in which they planted 3500 "baby" trees in record time. Credit for the success of the affair goes to Myles Standish, program chairman, and his committee, H. P. Burbank, Mark Hamlin, Ray Mitchell, Jim Hinchey and to Donald Porter, Scout executive. Instructions in the planting of trees and methods of using fire fighting equipment filled out the morning sessions. Early in the afternoon, with all participants still praying for rain to hold off, the Scouts began planting 3500 "baby" trees in an area which had been previously marked off in rows for convenience. This chore, as strange as it may seem, was accomplished in the record time of 45 minutes.

New Bleach Plant For Hammermill

New bleach and pulping facilities will be constructed for the Hammermill Paper Co., Erie, Pa., according to The Rust Engineering Co., the designer-constructor. Cost of the project is around $3,500,000.

Design of the 200-ton three stage bleach plant is underway and construction is expected to begin shortly.

Fibre Board Expands

The Fibre Board Container Corp., a subsidiary of Robert Gair Co., Inc., has announced a $400,000 expansion and improvement program for its plant at Richmond, Va.

T. J. Bourne, Jr., vice-president of Fibre Board, said more than $250,000 will be spent on expanding the building and $150,000 for new equipment.

The concern had considered moving out of the city to a new site on the outskirts of Richmond but said that advantages of the present location — in Richmond's eastern downtown fringe — made them decide in favor of expanding the plant.

When the work is completed — probably by late fall — Fibre Board will have a 30,000 sq. ft. warehouse capable of storing 3,000 tons of paperboard; a storage area of 10,000 sq. ft. for finished goods; an enclosed loading dock, and about 4,000 sq. ft. of new office space.

The existing layout of machinery and equipment will be changed to provide for a new corrugating unit, with major production on one floor.

Mr. Bourne said that several adjacent tracts of land have been bought and that negotiations have led to an agreement with the city of Richmond to exchange parcels of land. In that way, Fibre Board will have a loading and parking lot on the West side of its building.

Another agreement has led to relocation of a 60-foot stretch of city street to make more room at the plant. The cost of changing the street bed will be assumed by the company.

The Chesapeake and Ohio Railway will install a new spur line to the plant and will take up its old tracks. The new spur can accommodate six freight cars.

Robert Gair Co., Inc., purchased the Fibre Board Container Corp. properties and good will in 1949 from a Richmond group that included Mr. Bourne.

an Important Difference...to fit any sizing need...your choice of 25 ALWAX* and WAXINE® Sizes

Choose the sizing properties you want in your papers... then let your Cyanamid representative help you achieve them with one or more of the *twenty-five* grades of ALWAX or WAXINE Sizes. Rigidly quality-controlled, these sizes have been tested and studied under countless mill conditions, so that their performance and results are precisely determinable in most cases—no guesswork and no variation from batch to batch!

You'll find this tremendous selection of acid stable, alkali stable, and acid-alkali stable wax emulsions a valuable asset in improving the sizing results of your papers.

Recent Mill Developments With Cyanamid Paper Chemicals...

Laundry Tags That Withstand Perchloroethylene in dry-cleaning processes are now being made of papers treated with PAREZ® Resin 607, the MELOSTRENGTH® Resin for dependable wet strength. It is believed that this is the only resin capable of imparting such resistance to laundry tag paper.

* * *

Better Printing With Aniline Ink on milk bottle cap laminated to aluminum foil is credited to Sodium Phospho Aluminate. ½% of Sodium Phospho Aluminate added to the tray water to pH 6.0 is the procedure at a Midwest mill. The mill reports that previous printing difficulties due to acidity of the paper have been practically eliminated.

* * *

A Rise In Butyl Carbitol Test from 35" with water to 60" with CYRON® Synthetic Size was achieved at an Eastern mill. The size was dissolved according to instructions, neutralized to pH of 7.0 with caustic. A defoamer was added and the CYRON applied at a 1% concentration to the surface of a white patent coated sheet from one water box on the calender stack, giving the significant improvement in test results.

* * *

More Uniform Machine Coating with AZITE® 900 Liquefier is reported by one Southern mill, using 10% AZITE based on casein adhesive.

*Trade-mark

THE LARGEST VARIETY OF PAPER CHEMICALS, *to serve every industry need, is offered by Cyanamid, and is backed by the services of technical experts with years of practical mill experience.*

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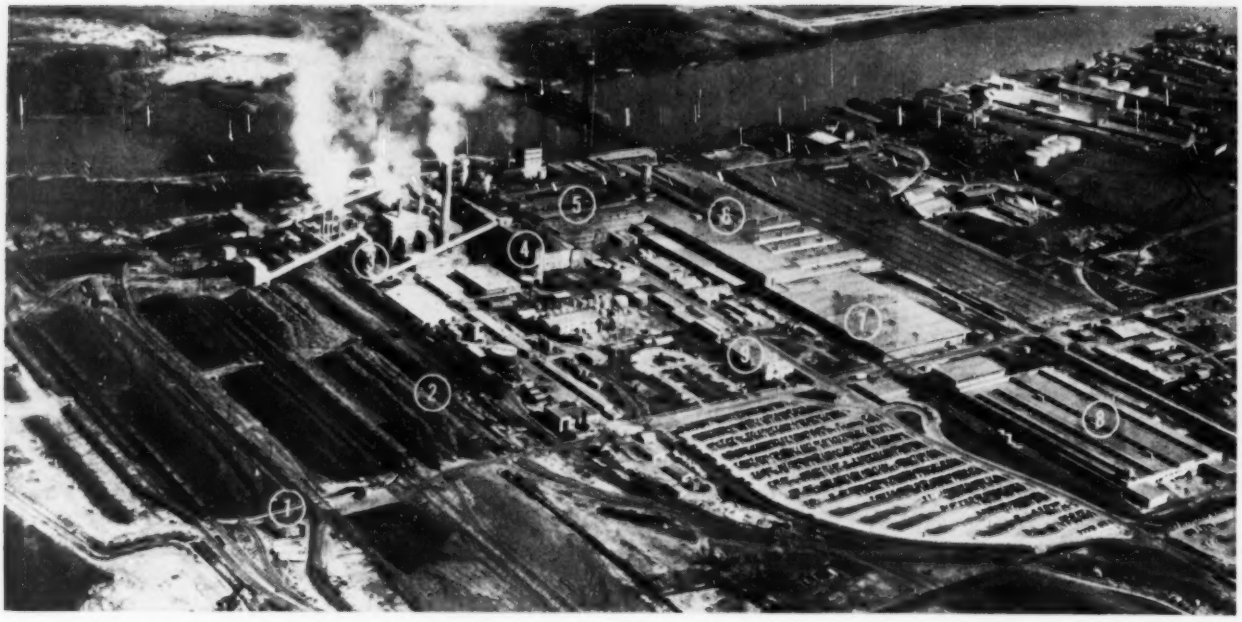


WORLD'S LARGEST KRAFT MILL, the Union Bag & Paper Corp. plant at Savannah, Ga., employs 5400 workers with an annual payroll of $20 million. Seen in this aerial view are: 1) Southern leg of new woodyard flume, 2) chain conveyor line for direct handling of hardwood to barkers, 3) new chip storage silos, 4) new extension of digester building to accommodate six more kraft digesters and six semi-chemical digesters, 5) paper machine room, 6) bag mill, 7) new warehouse and shipping building, 8) box plant, 9) new administration building.

Union Bag Completes Program "A"

First highlights of the new semi-chemical pulp mill, the new No. 6 fourdrinier, and an amazingly efficient woodyard that services the entire pulp mill, now grown to 36 digesters.

Continual expansion and modernization of the mammoth Union Bag & Paper Co. plant at Savannah, Ga., has been carried on since original operations began in 1936. The most recent phase of this activity was begun three years ago and was designated the "A" Program. Basically, the program undertook to increase the mill's nominal daily production from 1340 to 1760 tons per day of finished product. General contractor for this entire program was Morton C. Tuttle Co. of Boston.

Wor'd's Largest

This increase of 420 tons per day production has elevated the Savannah plant to undisputed rank as the largest single kraft manufacturing unit in the world. Three hundred tons of the new production comes from a new neutral sulphite semi-chemical process using hardwood. The remaining 120 tons results from increases in kraft paper and board production. Certain facilities under the "A" Program were designed to provide for additional expansion beyond the 1760 tons per day to 2000 tons per day nominal production. This goal is achievable with the elimination of a few bottle necks. The mill has already reached the record production of 2163 tons for a single day's operation.

Features of the Program

Among the recently completed construction projects, described in detail below, are: a unique pulpwood flume system, a six-digester semi-chemical pulp mill, six additional kraft digesters, one new evaporator, a new black liquor recovery unit, a wet-bottom precipitator, and additions to the recausticizing plant and a new sulphur burning plant. Also included in the program was the installation of a 234-inch fourdrinier and appropriate stock preparation equipment.

Woodyard Improvements

The new flume system in the woodyard was developed for the particular requirements of the mill to furnish an average of 200 cords per hour or a nominal productive rate of 1985 tons per day, 1585 from pine and 400 from hardwood semi-chemical pulp. Other woodyard developments include specially designed gantry cranes for unloading rack cars into the flume; truck dumping arrangement; rotary pulpwood distribution table supplying wood to six barking drums; sand, grit and bark removal equipment, and the application of

plows for regulating log feed from the table and drag chain conveyor discharging to individual barking drums.

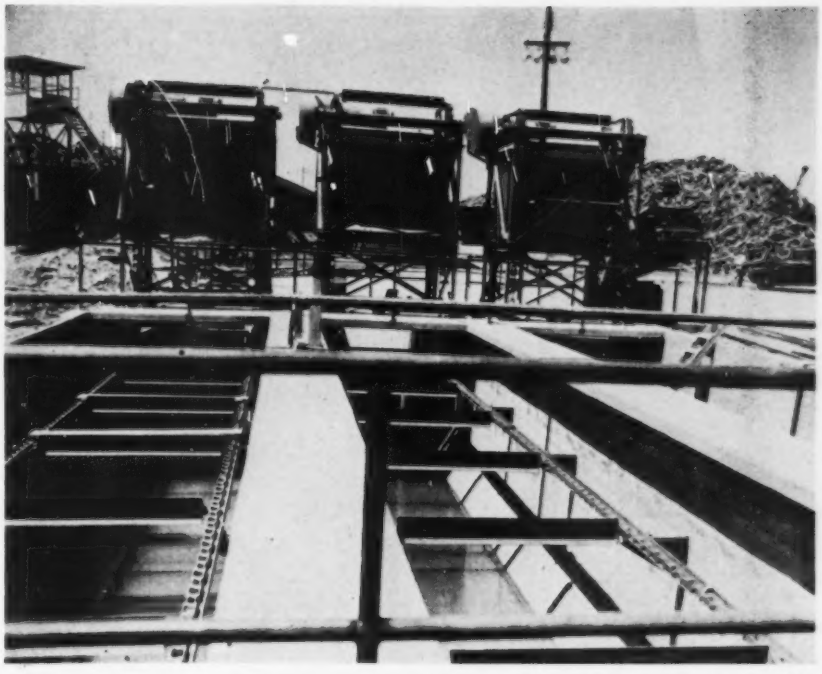
To meet the basic requirements of expanded pulp production, the existing woodyard was converted to hardwood handling and a new yard, using the flume system, was laid out for handling pine. For the most part, hardwood pulpwood is gum.

The Flume

The flume was designed for a basic length of 4400 feet to allow for possible future extension. The initial installation is 3200 feet long. A hydraulic gradient was established to furnish a minimum flume velocity of five feet per second. In typical cross-section along the loading areas, the flume is three feet wide at the bottom with sides inclined to provide nine feet-seven inches width at the top of the concrete. Above the concrete, loading aprons slope upward at 30 degrees to the railroad.

The flume completes a rectangle through the woodyard. Loading aprons 1000 feet in length extend along the east and west legs of the flume. Along the east leg, which because the yard elevation had to be built on fill, the loading aprons were made of pine catface mats bolted together in six-foot sections. After the mats have reached their final settlement, concrete aprons will be poured.

In actual operation, flume velocity is about seven feet per second at 45,000 g.p.m. Some of the velocity increase over that established in the original 4450-foot design is due to the shorter flume length, but also less friction factor than was expected is partially responsible. Logs do not scrape the sides around the corners, due to counter-current being set up by the water as it approaches the curve, thus rolling the wood toward the center line.



FLUME WATER ENTERS THREE CHAMBERS OF THE SETTLING BASIN. Here small stones, loose sand, and sand-impregnated bark are discharged via chain conveyor, which dumps load into load-lugger bucket. Average collection is four cubic yards per hour.

Flume Water Supply

Water for use in the flume is taken from the seal pit on the evaporators. Twenty five hundred g.p.m. is used constantly to provide water for the sprays on bark removal screen, high-pressure nozzles, and makeup to the flume.

To insure continued flume operation,

DUMPING A TRUCK LOAD OF PULPWOOD into flume is accomplished in a couple of minutes by this hydraulic lift platform.

CRANE WITH ORANGE-PEEL GRAPPLE can move logs either from storage piles or from railcars. The entire woodyard is protected against fire by a two-source water system piped to high pressure nozzles that are mounted on concrete piers throughout the woodyard.

ONE OF TWO GANTRY CRANES which company engineers helped design to pull pulpwood from flat cars. Unloading rate is four to six minutes per car. The other gantry is a modified earth-moving machine.

WOODYARD CONTROL TOWER AND SECTION OF ROTARY TABLE. The remotely controlled plows distribute logs into any one of three conveyors leading to separate sets of barking drums. Control tower is connected by radio with flume loading operators.

a settling chamber to slow down the water velocity to one foot per second, thus allowing grit, sand and sand impregnated bark to drop out of suspension, was incorporated into the flume design. Water flows through the chains on the escalator conveyor to three separate approach channels ahead of the settling basin. Water velocity in each channel is designed for three feet per second to prevent presettling. Three settling chambers are each equipped with drag buckets mounted on chains to remove the settled materials with a bark screen to remove loose bark.

Settled water passes through the bark screens into the pump sump chamber to a 45,000 g.p.m. 14 foot total dynamic head pump driven by a 200 hp. 400 r.p.m. motor. The pump discharges through an underground concrete pipe up to the high end of the flume.

Pulpwood cars are spotted along both sides of the unloading sections paralleling the flume. Forty-four rack cars can be placed along each leg, 22 in one switch. The unloading track is a three-rail line, the inner rail being for a gantry crane spanning the flume. When logs are to be unloaded from box cars, the gantry crane is run to the end of the track and cars are placed on the two rails next to the flume.

Specialized Equipment

The gantry cranes built to specification for Union Bag, pull the wood off the car directly into the flume. Gantry unloading rate is approximately six minutes per rack car, being regulated by barking drum requirements. Pulpwood from yard storage is handled by con-

COVERED CONVEYOR carries screened chips to the two new chip silos. One silo receives hardwood chips and the other receives pine chips.

ventional cranes operated in conjunction with the fresh wood from the rail cars. Truck wood is dumped into the flume as received. Trucks back into a hydraulic lift platform, hinged at the flume end. Trucks are inclined until the pulpwood starts to roll off into the flume. Wood supply at present approximately balances at 200 cords of truckwood, 700 from storage, 2100 from cars, for a total of 3000 cords per day.

Wood is removed from the flume on a five-strand chain conveyor. Logs discharge over the head pulley onto a 43 foot diameter rotary table built by Link-Belt Co. Remotely controlled hydraulic plows distribute logs into any one of three conveyors or into all three at once, if desired. A fixed plow is provided to discharge any excess wood into the flume for recirculation.

Hardwood Handling

Wood from the three drag conveyors discharge to individual inclined conveyors, feeding three sets of two barking drums per set. Two of the drums are new units furnished by Fibre Making Processes, Inc. In addition, wood from old storage yard, which is for hardwood storage under the new arrangement, can be fed to the drum conveyors. This provides that during flume emergencies, rack cars of pine can be located along the old conveyors to keep a supply of pine to the drums. Also, hardwood is furnished to the new drum conveyors from the old yard during the eight-hour chipping operation on hardwood.

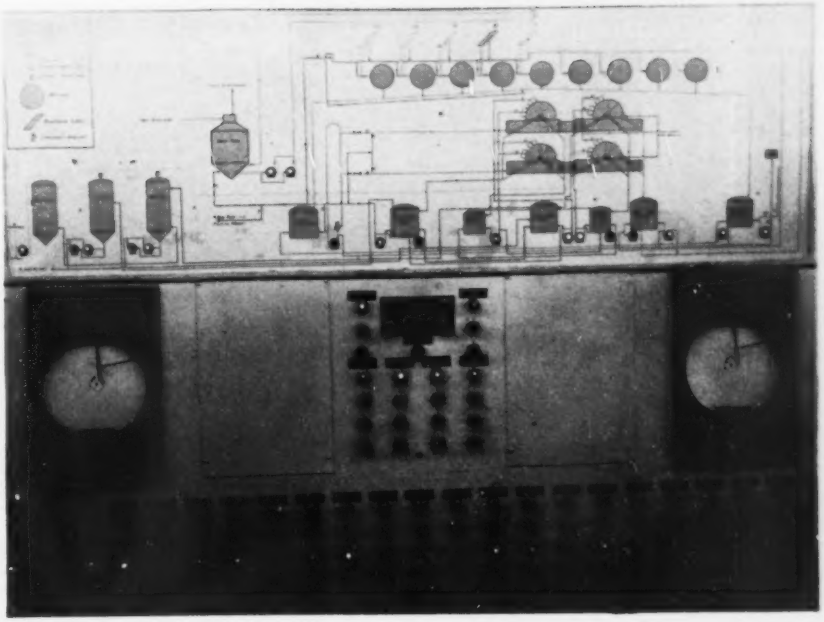
Additional chipping capacity is furnished with a new 110-inch D. J. Murray chipper powered by a Westinghouse motor, four Tyler chip screens, and one Carthage rechipper.

Two new chip storage silos, 40 feet in diameter with 60,000 cubic feet capacity were built by Chicago Bridge & Iron Co. These provide the storage necessary for intermittent chipping of hardwood. The silos are coated with Erkote 2 X Corrosion Resisting Mastic.

Semi-Chemical Mill

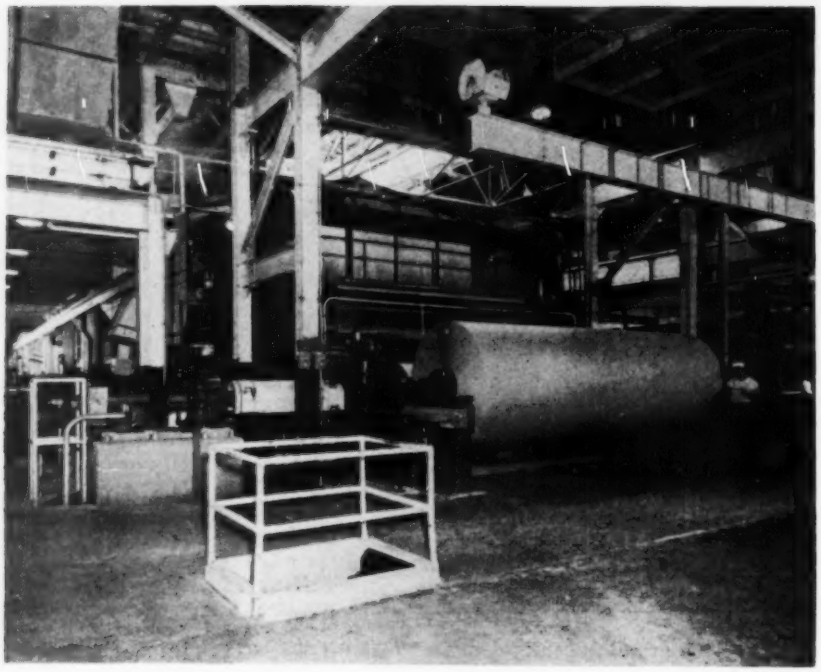
Convertible to Kraft

The semi-chemical pulp mill was designed for the purpose of cooking hardwood under the neutral sulphite process for a nominal production of 265 tons per day. Equipment arrangement and capacity are laid out so that expansion of the semi-chemical pulp mill to 400 tons per day can be achieved with minimum alterations. For the original installation, those items of equipment essential to kraft pulp production were incorporated in the semi-chemical design with the result that either kraft or semi-chemical pulp can be produced.



PROCESS FLOW in the new semi-chemical pulping system is clearly evident from this diagram in the control panel of the brown stock washing room. Buttons mark every motor in the system. They remain lighted unless failure occurs, at which time a warning horn sounds.

NEW NO. 4 LIME KILN was installed as part of the necessary increase in chemical recovery facilities but not as part of Program "A."



POPE TYPE REEL on the new machine will build rolls up to 96 inches in diameter.

Special Digesters

The digesters by Chicago Bridge & Iron Co. are similar in design to those used on kraft except that the top of the unit is in the general shape of a sulphite digester to provide for installation of a carbon brick lining. The carbon brick are 9 x 9 x 2½ inches curved to fit the radius of the digester shell. The brick are laid in a joint material composed of graded digester quartz and Portland cement. In back of the carbon brick is a layer of grout 1½ inches thick. The semi-chemical units have been equipped with digester circulating systems. The circulation pipe lines have been arranged for the future possible installation of a heat exchanger for indirect cooking. The digester blow valves are operated from the cook floor through a hydraulic remote controlled system. Blow steam goes to the atmosphere.

Dewatering & Refining

The six digesters blow to a common 24-foot diameter blow tank. Stock is pumped from the blow tank through a header serving five Link-Belt dewatering screens. Pump capacity is 25 per cent over the maximum usage contemplated, thus furnishing a continuous return of pulp to the blow tank. While the blow tank is equipped with a conventional type agitator, the recirculating stock is used to assist in keeping the chips in suspension as well as alleviating stock line plugging.

Stock going over the dewatering screen has the free liquor removed with the high consistency stock discharging over the end of the screen. Black liquor is then added back into the chutes ahead of the Sprout-Waldron refiners at a manually controlled rate. Vapors released as stock and liquor come in contact with air at room temperature are removed through a stainless steel duct ventilating system. The nine refiners are split, four for primary, four for secondary, and one that can operate as either a primary or secondary unit.

Washing

Primary refined stock discharges into a small stock tank, and is then pumped up to two lines of Swenson-Nyman 9-foot diameter by 16-foot face washers. Washers are of conventional design but have been furnished with stainless steel drainage tubes. Also, the drainage deck consists of stainless steel corrugated plates supported on the drainage channels. In place of the usual sleeve type trunnion bearings, the drums were designed with anti-friction bearings. Washer hoods were designed by Union Bag with transite supported inside of steel structure with all joints sealed to prevent vapors coming in contact with the steel. Uptake ducts are of stainless steel.

Stock from the washers discharges into a tank and is then pumped up to the washer floor elevation for secondary refining in additional Sprout-Waldron units. The washed refined stock is then pumped over to the screen room deckers.

Controls

Instrumentation in the wash plant is in keeping with the modern trend of providing the operators with as much automatic control as can economically be justified. Level recorders on liquor, stock and blow tanks, washer shower flow indicators, steam and water flow meter, and blow tank constancy controller are the same as in general use. In addition, the vat level recorder on the first drum of each line is tied in with a Venturi type flow meter on the individual stock lines feeding the two lines of washers. Stock flow is controlled from the main panel board through a diaphragm operated stock valve ahead of the meter. Dilution liquor to the vat is controlled through a ratio controller actuated by stock flow meter. The main panel board has a diagrammatic layout of the entire wash plant equipment. Each motor is indicated by a light connected to a signal horn. Whenever motor failure is experienced a horn signal is sounded and operators can tell by a glance at the diagram which motor is causing the difficulty. When this pulping system is switched to kraft pulp production, the blown pulp by-passes the dewatering screens and refiners and is pumped directly to the washers.

N.S.S.C. Liquor Plant

In preparation of neutral sulphite cooking liquor a sulphur burning plant is essential. Sulphur is received at the plant in bulk, melted and stored as liquid in one of two insulated tanks. Each tank has a capacity of 450 tons. Sulphur is burned in a G. D. Jenssen rotary sulphur burner. Gas is discharged from the burner into primary and secondary combustion chambers. Gas then passes through a cooling tower into a chrome nickel steel perforated plate type sodium sulphite absorption tower. Liquor from the absorption tower is pumped to a buffering tank where filtered soda ash is added at a controlled rate. From the buffering tank the finished liquor is pumped to a storage tank along side the semi-chemical digester house. This storage tank is 40 feet in diameter by 26 feet high with an approximate storage capacity of 235,000 gallons.

Unique Buffer Preparation

Soda ash is received in hopper bottom cars discharging into a screw conveyor system which transports the ash to a slurry preparation pit. Under this system soda ash can be unloaded on an average of a 45 ton car in an hour to an hour and fifteen minutes. High pres-

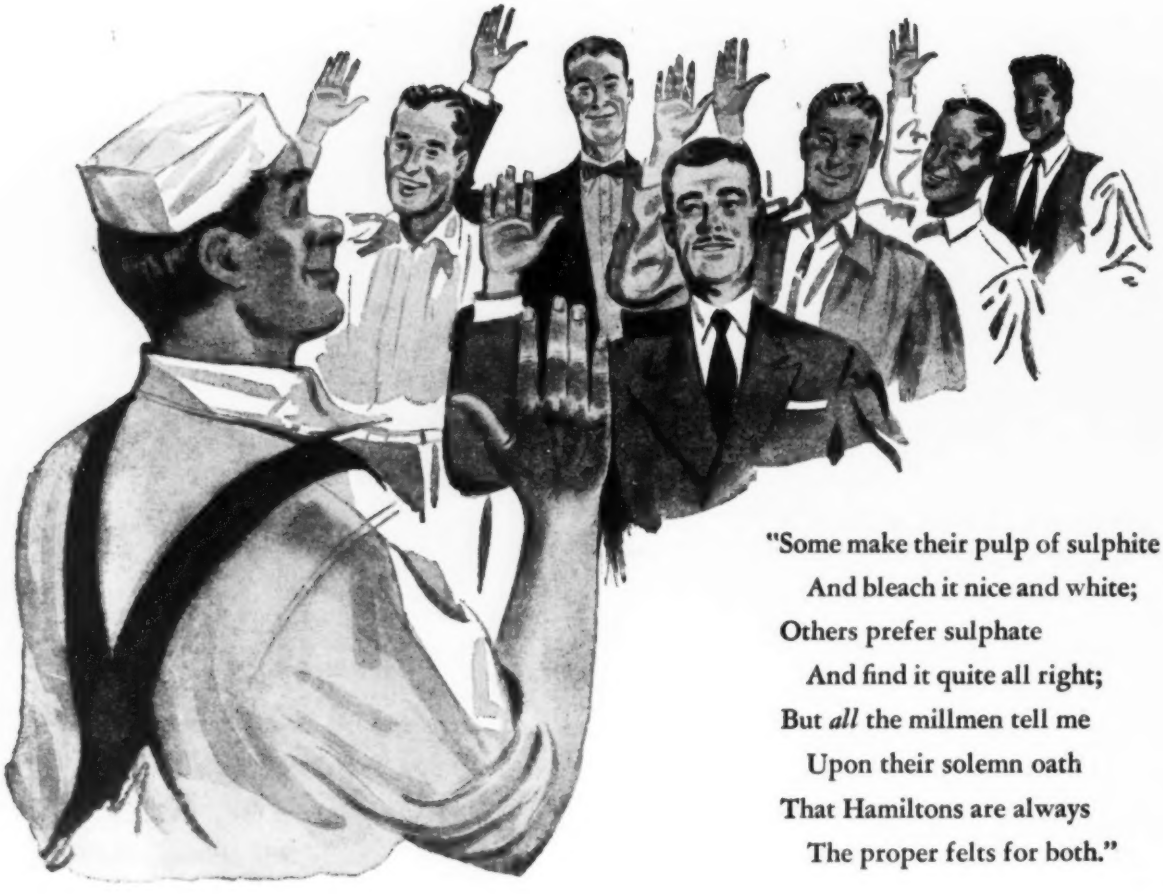
(Continued on page 21)

COLOR PHOTOGRAPH BY JOHN G. HOLYOKE

BELOIT IRON WORKS · PAPER MACHINERY · BELOIT, WIS., U.S.A.

216″ BELOIT MACHINE built for West Virginia Pulp and Paper Company's mill at Covington, Virginia. Efficient production of high-quality food-container board is helped by features such as air-cushioned headbox, specially designed press section, air guides for wire and felts, heavy-duty pneumatic reel, and high-speed shear-cut winder. The Beloit Differential Drive holds accurately selected draws without variation, thus raising sheet tests and sharply cutting machine breaks.

HAM FELTZ SAYS



"Some make their pulp of sulphite
And bleach it nice and white;
Others prefer sulphate
And find it quite all right;
But *all* the millmen tell me
Upon their solemn oath
That Hamiltons are always
The proper felts for both."

"I suppose most millmen have more than one source of supply for felts. No sense in having all their eggs in one basket. But it is remarkable how many superintendents *prefer* Hamilton Felts to keep drying costs down while production goes up.

"It's just possible that this preference for Hamilton Felts is because Hamiltons, with their larger open spaces between threads, let water run through faster while their thick, silky nap gives a finer finish without leaving felt marks in the sheets."

From the thinnest tissue to the heaviest board there is a Hamilton Felt that will do your work better, faster and at lower cost.

Hamilton Felts

MIAMI WOOLEN MILLS

Established 1858

SHULER & BENNINGHOFEN, HAMILTON, OHIO

sure sprays sluice the soda ash into a small pit on the suction side of a 1,000 g.p.m. pump. This pump discharges into a 62-foot diameter by 40-foot high soda ash slurry storage tank with a capacity of 904,000 gallons. As additional soda ash is received, solution from the tank is used in the spray system thus gradually building up the amount of soda ash in solution. Actual storage capacity is calculated to be approximately 2,900 tons when the soda ash is in a maximum slurry form. For process use a clear solution is withdrawn from the top of the tank, the rate being controlled through a ratio controller. Soda ash is passed through filters and then stored in a tank and used for buffering and in the absorption tower as required. A green liquor storage tank has also been installed in the semi-chemical system. Green liquor is pumped from the caustic plant as available and stored for use as buffering in place of the soda ash.

Kraft Pulping Additions

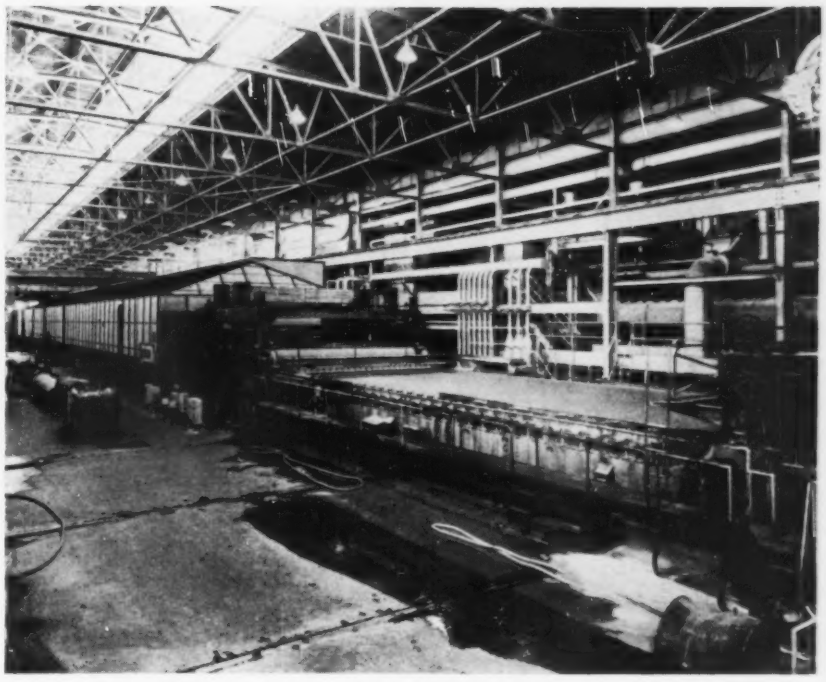
Six kraft digesters by Chicago Bridge & Iron and A. O. Smith Corp. each 10 foot 3 inches in diameter by 41 foot 11 inches overall length were added to the kraft mill. These, together with the new N.S.S.C. units bring the total number at Savannah to 36. With the additional digesters, the existing chip conveyor system from the woodyard would not have sufficient capacity. It was also desired that the digesters for both the kraft pulp operations and the semi-chemical could be charged from the new woodroom. In order to accomplish this, two shuttle conveyors were installed above the existing digesters and the new ones. Detailed scheduling of work was essential in order to remove the existing tripper conveyor and install shuttle conveyors during short shutdown periods. The final arrangement provides that thirty-five digesters can be charged from either wood room if desired. The thirty-sixth is fed directly by the old woodyard inclined conveyor.

Essential additions to the caustic plant were a new white liquor clarifier and a lime mud washer. Both of these units were purchased from the Dorr Co. The white liquor clarifier is a 40 foot diameter by 24 foot deep type A3TB tray thickener. The mud washer is a 40 foot diameter by 24 foot deep type A3TB tray thickener for single stage operation. The mud washer installation is arranged for either a primary stage on the existing mud washer with secondary stage on the new unit or as single stage operation on all units.

Chemical Recovery

"Brown" Liquor Included

Construction of the new semi-chemical pulping system provides that the spent brown liquor from this system be collected, evaporated, and burned in the recovery units along with black liquor from the kraft system.



NEW NO. 6 FOURDRINIER from the wet end. This Pusey & Jones unit runs kraft production at speeds up to 2000 f.p.m. It is equipped with a Valley pressure slice and a Rotareaed Deculator, visible above the machine at far right.

New Evaporator

Additional black liquor evaporator capacity was essential for the expansion program. The only location available for the installation of additional evaporators was in the area taken up by black liquor storage and soap removal tanks. The relocation of these items represented a costly and time consuming operation. A septuple effect unit was purchased from the Goslin-Birmingham Mfg. Co. The design rating is to evaporate 370,000 pounds of water per hour from a feed quantity of 506,000 pounds per hour of liquor at 14.35 per cent total solids and 190 deg. F., with a discharge of 136,000 pounds per hour at 53 per cent total solids. Steam required is approximately 66,400 pounds per hour at 40 p.s.i.g. for maximum requirements. The barometric condenser is designed to condense vapors from the seventh effect using approximately 5,640 g.p.m. at 95 deg. F. river water. The general arrangement for the septuple unit is for divided liquor feed to the sixth and seventh effects pumping from these to the remaining effects. Heating elements of the first and second effects contain type 304 stainless steel tubes. The balance of the effects contain welded steel tubes. Warner separators are used in all effects.

New Recovery Boiler

A new black liquor recovery unit was furnished by Combustion Engineering Inc. It is rated at 350 tons per day of pulp. This is a spray type unit designed for 475 p.s.i.g. 750 deg. F. with 36,642 square feet of total heating surface. Capacity of dry solids per twenty-four hours is 1,050,000 pounds with steam capacity of 168,500 pounds per hour on the designed black liquor burning rate. Maximum steam generation on oil firing is 200,000 pounds per hour.

Incorporated in the design of this unit was the first installation of a water cooled furnace bottom in which the boiler tubes (with fins welded on the sides and plastic chrome poured over the tubes) form the bottom of the furnace. The smelt creates a level pool 6 inches deep over the entire bottom discharging through the smelt spout at this fixed depth.

Two Murray Cascade evaporators of two wheels each are located parallel to each other at the rear of the unit. Gases pass through the Cascade evaporators to a Cottrell precipitator for the chemical recovery.

Wet-Bottom Precipitator

The Cottrell precipitator installed with the recovery unit is a Research Corp. unit designed for 90 per cent removal on 160,000 cubic feet of gas per minute with temperatures ranging from 275 to 300 deg. F. Construction is of typical

precipitator design with 8-inch thick reinforced tile shell and concrete roof insulated with two inches of Perlite. In place of the normal reclaiming dust conveyor system the precipitator was equipped with a wet bottom in which a black liquor level is maintained. Two vertical agitators in the precipitator wet bottom provide means of keeping the dust in solution. The dust absorbed in the black liquor is pumped up to the Cascade evaporators.

Paper Mill Expansion

Nine Point on No. 2 Machine

The production of semi-chemical pulp from hardwood is now being made into .009 point corrugating medium on the No. 2 fourdrinier paper machine. With minor changes, the semi-chemical pulp is prepared for No. 2 with the existing stock preparation equipment.

The former kraft production from No. 2 machine has been absorbed by the new No. 6 fourdrinier plus additional new kraft production.

Stock Preparation

Stock preparation equipment for the new No. 6 paper machine was installed in a building added to the existing stock preparation room. Stock is pumped from the kraft wash plant up to the knotter head box discharging to four Impco rotary knotters. Accepted stock from the knotters discharges to three Cowan screens. Screen tailings are collected in a tank and then pumped back to the knotter elevation through a rejects knotter for reclamation of fiber. The screened stock discharges to two Impco vacuum deckers 8-foot diameter by 16-foot face. Located next to the deckers is an 8-foot by 16-foot Impco Save-All for reclamation of fibers from the paper machine.

Deculator Employed

Deckered stock is pumped from the decker chest through a consistency regulator to the machine chest then to eleven Sutherland 48-inch refiners. Refined stock is pumped through a regulating box, thence through a stock regulating valve feeding into the suction of the mix pump from the wire pit. The mix pump discharges to a Rotareaed Deculator assembly with a 6-foot diameter by 30-foot long receiver. Deculator capacity is rated at 25,000 g.p.m. Deculated stock is then pumped by a 36-inch x 30-inch fan pump up to a pressure type head box. This unit was furnished by the Valley Iron Works Co. The head box has all interior surfaces of the inlet lined with 16 gauge stainless steel, exterior parts of steel being fully lithcoted.

No. 6 Fourdrinier

The paper machine is a Pusey & Jones 234-inch fourdrinier kraft paper machine designed for a speed of 2,000 feet per minute. The fourdrinier is designed for a 120-foot long wire with 26-inch diameter breast roll 238-inch face, a 44-inch diameter suction couch roll, a 30-inch diameter lump breaker roll at the couch, and a total of ten suction boxes. The fourdrinier is typical Pusey & Jones rapid-drape wire handling design. Exposed structural surfaces have a protective covering of stainless steel.

The press part is a Pusey & Jones simplex arrangement with over head frames comprising two main press rolls. The upper roll is 36-inches in diameter, neoprene covered, 238-inch face. The lower roll is 38-inches diameter suction type cast bronze shell with 236-inch drilled face. Pneumatic air loading system is used to properly distribute the desired weight on the bottom roll. A complete Mason-Neilan system with con-

Executive Personnel at Savannah

T. T. Dunn, Vice President and Resident Manager

Construction Engineering Department
R. T. Inman, Chief Engineer
J. R. Fielding, Construction Engineer

Planning and Scheduling, Bag, Pulp and Paper
M. C. Guyot

Public Relations Department
W. K. Sutlive, Manager

Administrative and Accounting Division
A. Lawson Sopp, Assistant Comptroller

Industrial Engineering Department
J. M. MacBrayne, Chief Industrial Engineer

Legal and Insurance Department
S. P. Driscoll, Manager

Purchasing Department
C. A. O'Brien, Purchasing Agent

Traffic Department
L. H. Bouchelle, Manager

Bag Division
V. E. Kelly, Manager
F. E. Kneip, Assistant Manager
L. M. Newton, General Superintendent

Box Division
M. R. Hamarat, Manager
R. L. Chaney, Assistant Manager

Industrial Relations Division
F. W. Kelley, Manager
C. L. R. Dougherty, Assistant Manager

Pulp and Paper Division
J. R. Lientz, Manager
H. Y. Charbonnier, Assistant Manager
T. C. Johnson, General Operating Superintendent
J. J. Ward, General Power and Maintenance Superintendent

Technical Division
M. L. Taylor, Technical Director
G. C. Kimble, Assistant Technical Director

Woodlands Division
J. J. Armstrong, Manager
W. J. Bridges, Assistant Manager

Dependable Source for Chemical Raw Materials

Leonard A. Pierce, Jr., mill manager (right), discusses a procurement problem with Jack W. Hartung, purchasing agent, St. Regis Paper Company, Kalamazoo, Mich.

How Wyandotte helps St. Regis make top quality papers

The Kalamazoo mill of the St. Regis Paper Company specializes in coated and uncoated printing and specialty papers, and Panelyte decorated products. Their products are among the finest being made . . . therefore, they require the best raw materials available. St. Regis uses Wyandotte CAUSTIC and CHLORINE in processing, and Wyandotte PURECAL* in their finishing operations.

At one time, they used a calcium hypochlorite bleach, but found the lime residue a distinct disadvantage. With the help of Wyandotte technical service, they changed over to sodium hypochlorite, and not only eliminated lime deposits, but got better quality as well.

The Kalamazoo mill of St. Regis Paper has made considerable use of Wyandotte's technical services in the use and handling of chemicals, and they have expressed their satisfaction with the co-operation they receive from Wyandotte, particularly in times of short supply.

Wyandotte owns its sources of raw materials . . . is centrally located, convenient to all forms of transportation . . . and has a background of more than 64 years of service to industry. If you use raw-material chemicals, or need assistance in their use or handling, contact Wyandotte. Stating your problems in detail will expedite our services to you. *Wyandotte Chemicals Corporation, Wyandotte, Michigan. Offices in principal cities.*

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Wyandotte
CHEMICALS

HEADQUARTERS FOR ALKALIES

Soda Ash • Caustic Soda • Bicarbonate of Soda • Chlorine
Calcium Carbonate • Calcium Chloride • Glycols • Synthetic
Detergents • Agricultural Insecticides • Soil Conditioners
Other Organic and Inorganic Chemicals

trol valves and gauges are mounted in a console type cabinet on the tending side. Press felts pass in a forward direction through the respective presses. Sixteen felt rolls are furnished, with one roll on each felt full wormed on the face with hard rubber to act as felt spreader. A Vickery conditioner fitted with three Jordan type suction shoes is furnished for each press felt. All vacuum pumps were furnished by Nash Engineering Co.

Dryer Part

The dryer part is arranged in four sections with one upper and one lower felt on each section, a marking press between the second and third section, and a size press between the third and fourth sections. The four sections have a total of 71 main paper dryers 60-inches in diameter, 16 felt dryers 48-inches in diameter, and one 42-inch diameter receiving dryer. Each dryer has been dynamically balanced at surface speeds up to 2,000 feet per minute. The dryer journals run in extra heavy duty roller bearings enclosed in housings with seals against entrance of dust and oil leakage.

Each bearing housing is fitted for connection to a Bowser oil circulating system. All dryer gears and idler pinions on the driving train are enclosed in cast iron oil-tight casings, integral with the dryer frames, and arranged for lubrication from the Bowser circulating system. The Bowser oiling system is the latest design equipped with a combination receiving tank, filter unit, and clean oil storage tank. Two sets of duplex motor driven oil pump units complete with automatic controls are included.

Machine Accessories

Sheehan rope feed paper carriers for threading the sheet through the dryer part, Nash automatic felt guides, automatic felt tightener, paper spring rolls at the end of the third and fourth dryer sections, access platforms, and an open grill iron footboard extending the length of the dryers, are parts of the machine. The calender stack comprises eight rolls. All rolls are 228-inch face of chilled iron. Latest type pneumatic system is provided for applying pressure in loading the rolls.

The Pusey & Jones reel is a Pope type uniform speed reel of special design. The main drive drum is 42-inches in diameter x 228-inch face. The maximum diameter roll of paper which can be reeled is 96 inches. The slitter and winder, complete with unwind stands, is a two drum uniform winder suitable for handling rolls up to 60 inches in diameter by 220 inches trimmed width. The winder drums, rider roll, and slitters are balanced for speeds up to 6000 feet per minute. The winder is equipped with the latest design ejecting and unloading device for handling of paper rolls from the winder to the floor.

The air ventilating systems for the machine were furnished by the Jamar Olmen Co. The paper machine hood and exhaust system have a total exhaust capacity of 550,000 c.f.m., which provides a building air balance of at least 70 per cent of the total air exhausted through the hood. The air ventilation supply systems have a capacity of 429,000 c.f.m. for an air balance of 78 per cent supply of exhaust capacity. The electrical center for paper machine controls and motor generator sets has a separate air supply system rated at 74,000 c.f.m. In addition, the cooling air system for the motors on the paper machine drive has an individual ventilation supply rated at 25,000 c.f.m. at three inches static pressure. The winder drive motors and breaking generators also have a separate air cooling supply system. Each of the three latter systems have individual automatic oil filtered air intakes. The felt air system is by J. O. Ross Engineering.

Officers of Union Bag & Paper Corp.

Alexander Calder, President and Chairman of Board; Alexander Calder, Jr., Executive Vice President and General Manager; H. Stuart Daniels, Executive Vice President and General Sales Manager; G. W. E. Nicholson, Executive Vice President in Charge of Manufacturing; Sydney K. Bradley, Vice President; R. Carl Chandler, Vice President; Leonard J. Doyle, Vice President; Thomas T. Dunn, Vice President; D. J. Hardenbrook, Vice President, Fred H. Meendsen, Vice President; Malcolm S. Black, Secretary and Treasurer; Wilton D. Cole, Assistant Secretary and Assistant Treasurer; Sydney J. Taylor, Assistant Secretary and Assistant Treasurer; Dorothy McCloskey, Assistant Treasurer; John B. Porter, Comptroller; A. Lawson Sopp, Assistant Comptroller.

G. W. E. Nicholson
Executive Vice-President in Charge of Manufacturing, Union Bag & Paper Corp.

Machine Drives

The paper machine is equipped with a General Electric multiple generator electronic amplidyne controlled sectional paper machine drive for machine speeds of 350 to 2000 f.p.m. Drive motors are rated at 550 volts. Motor sizes involved are 700 hp. for the couch, 200 hp. each on the press and dryer sections, and 400 hp. on the calender stack. The first and second main MG sets have a 1000 hp., 1200 r.p.m. A-C motor. Number Three MG set is rated at 900 hp. at 900 r.p.m. The electronic control provides the means of regulating the speed of the various sections of the machine.

The winder is equipped with a 6000-foot per minute regenerative braking winder drive. The main D-C panel provides amplidyne control for acceleration and deceleration as well as braking generator control. The operator's panel is located adjacent to the winder and includes a master combination switch and rheostat for starting, stopping, and speed control.

Power supply is 13,800 volts from the turbine room to A-C transformers located on the ground floor of the electric control center. Motors are 2300 and 440 volts.

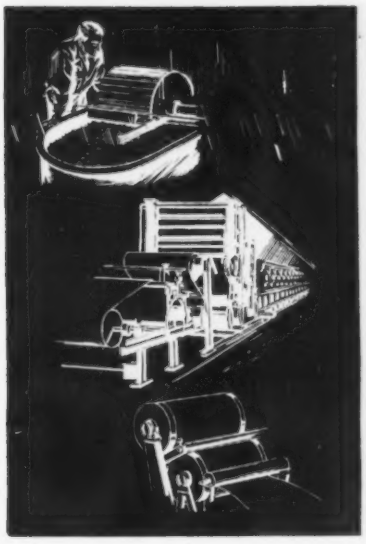
Other Equipment

Piping contractor for new lines in the stock preparation and paper mill departments was Grinnell Co., Inc. The electrical contractor was Rollinson Engineering Co. Wallace & Tiernan supplied a chlorinating system to treat all mill water received from the plant wells.

Other Plant Additions

Additional shipping facilities were provided by a 280 foot long extension of the shipping platforms paralleling two railroad tracks. Also, a new paper mill office and locker room for 200 men was incorporated in the design of the roll handling and shipping building extension.

At completion of the construction work, roads and storage areas were either finished with concrete paving or a hot mix asphalt to provide easy access to all departments.



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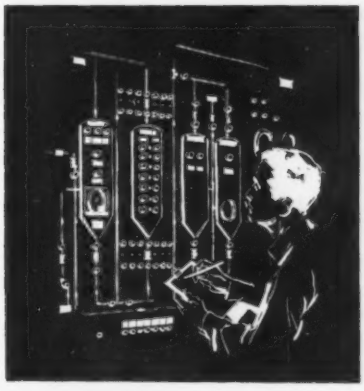
Paper Coating! Hercules Starches make clear, more permanent films, and have greater uniformity from batch to batch. *We modify these starches to suit any coating equipment.*

Calender Sizing! Hercules Starch is highly recommended for surface improvement. It is miscible with wax size and yields a paper board suitable for printing with gloss ink.

HERCULES STARCH FOR QUALITY PAPER



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STRUCTURAL USES FOR KRAFT HONEYCOMB CORE MATERIAL — Left to right: Masonite tile panel; plywood sub-flooring; acoustical ceiling; cores for ceiling, panels, sub-flooring, spandrels, doors, table and shelves. Each installation proved (1) moisture and fungi resistant; (2) dimensional stability; (3) high insulating qualities; (4) high load-bearing capacity. Included is a sound absorbent panel using Douglas fir white pocket veneer, developed by Forest Products Laboratory.

Honeycomb Core For Architectural Installations

Elce P. Nuttall

Associate Editor, Paper Trade JOURNAL

Most productive of the industry's markets, and possibly the most profitable are those where paper and paperboard supplants traditional materials. Multiwall sacks, for example, are more than a replacement for cotton and burlap. They are a custom-built protective packaging for hundreds of commodities. Fiber drums and fiber boxes supersede metal and wooden containers. Each is engineered for better packing, maneuverability, and less shipping costs. New building paper and boards are more than a makeshift for wood and metal. They provide forms which, because of light weight, adaptability and lower cost open up spheres of usefulness hitherto unexplored.

Outstanding in this latter group is Paper Honeycomb. This sandwich core material of kraft can be expanded to produce a large-volume, low-density sandwich structure. When bonded to any of several facings, it becomes an important factor in building-panel construction. In addition, it is a highly efficient protective packaging material.

Created of aluminum some years ago as a sandwich material for airplane structural use where sound absorption and thermal insulation were definite problems, honeycomb was later made of a cotton core impregnated with fiberglas. Because of its economic possibilities, inquiry followed into the use of kraft honeycomb. It has been noted that structures made of paper had even greater tensile, compressive and shear strength than similar cores made from cotton or rayon.

Research work into its use as a high-strength, lightweight sandwich material for aircraft applications, and, later, for building materials has been underway at U. S. Forest Products Laboratory, Madison, Wis., for over 10 years. Latest research has been into means of improving the insulation value of paper honeycomb cores and into thermal conductivity with filled-in cells.

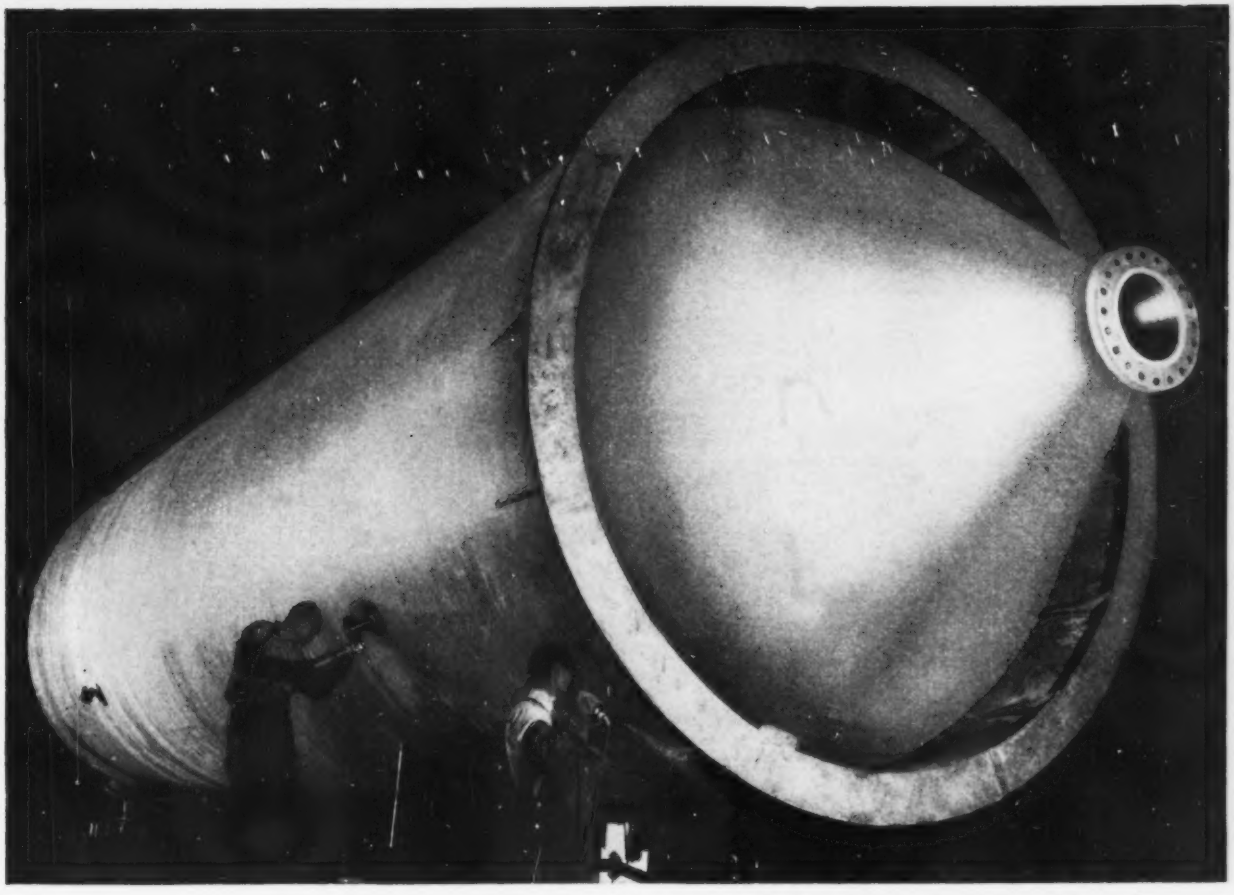
Thus, paper honeycomb is not a new product. The past two years have, however, seen extensive development of production facilities and phenomenal growth in use. Because of its properties of strength, durability, light weight, resistance to fire—and temperature extremes, its vibration absorption, its adaptability as a core for laminates of wood veneers, aluminum, plastics, etc., as well as its low cost, paper honeycomb is gaining in preference to other structural materials. Also, it has increasing applications as a protective packaging material.

Types and Characteristics

As made by Union Bag & Paper Corp., the largest producer, paper honeycomb is constructed of 26-lb. board, 33-lb. board, and 70-lb. kraft in two types, T-I-P and U-B. T-I-P is impregnated with phenolic resin, a specific development for structural applications. U-B, non-impregnated, was developed for protective packaging purposes. Each comes in standard cell sizes of 7/16-inch, ¾- and 1-inch, and can be provided in (A) pads for cutting into the calipers required, or (B) slices cut to caliper, or (C) can be furnished expanded. Standard calipers range from ½-inch to 4 inches. Compression strength varies from 20 p.s.i. on 1-inch U-B to 110 p.s.i. on 7/16-inch T-I-P.

Expanded non-impregnated (U-B) honeycomb is commonly faced with kraft

NEW METHOD OF PACKAGING MIRRORS using paper honeycomb.



Pulp digesters to improve the quality of tires

Installed in new plant to produce Chemical cellulose for Rayon cord

This is one of six, four SMITHlined and two clad digesters made by A. O. Smith for the new Rayonier Incorporated, Jesup Division installation.

It will produce chemical cellulose for rayon cord that will form casings for more economical, longer lasting automobile tires.

Lined with type 316 ELC stainless steel, these digesters are 12 feet in diameter, 55 feet high and are completely shop fabricated at our Milwaukee works.

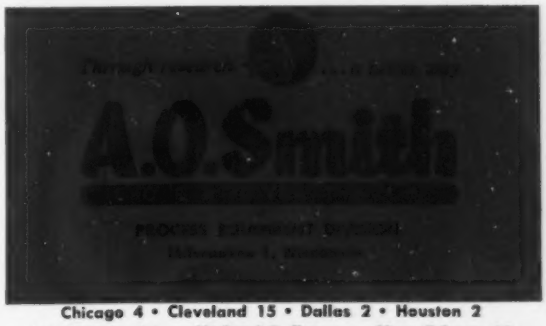
A. O. Smith engineers have worked closely with Rayonier in the past. They assisted in designing, and built the world's largest digester for their Fernandina division, and supplied two for the Port Angeles, Washington, mill.

Now, when building a new plant, Rayonier comes, again, to A. O. Smith for digesters.

Close cooperation of our staff with members of the paper industry in solving digester corrosion problems benefits all concerned. This cooperation does not end with the installation of the vessel, but continues in the conduct of subsequent metallurgical inspections and the training of mill personnel to make their own inspections and to correctly evaluate vessel conditions.

If you are faced with corrosion problems arising from the use of pulping chemicals in digesters, we shall be pleased to assist you in solving them.

Your inquiry will receive prompt attention.



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New York 17 • Pittsburgh 19 • San Francisco 4 • Seattle 1
Tulsa 3 • Washington 6, D.C.
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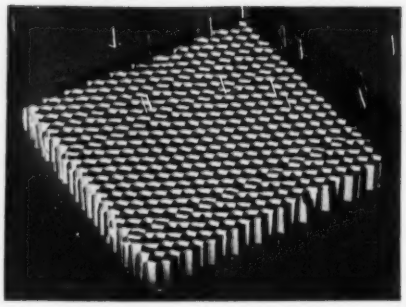
board on one or both sides and widely used for protective packaging. It can also be had unfaced.

Slices of impregnated (T-I-P) are furnished in expanded and cured sheets ready for facing with wood, metals, plastics, asbestos, gypsum wall boards, hardboard and fiberglas. These sandwich cores are proving of significant value in houses where entire walls, roofs, and floors are constructed of impregnated honeycomb core with stressed-skin plywood and other facings. Their uses in flush doors, panel partitions, etc., are here illustrated.

Protective Packaging

The vast uses of U-B types as protective packaging of books, instruments, electrical equipment, mirrors, etc. — wherever shock absorption, spacers and buffers are required — are scarcely explored. Air conditioner, meter, and mirror packings are shown in cuts.



IMPREGNATED HONEYCOMB T-I-P grade.

Man-Made Timber

The uses of this man-made timber appear to be limited only by man's ingenuity. Structural fields alone offer infinite possibilities. This sandwich construction is becoming increasingly popular, and new applications are being conceived daily. Paper honeycomb could very well become an industry major.

C. S. Volk

S. E. Kay

PAPER PEOPLE

Hinman Named Chairman at International Doane Succeeds Him as President

J. H. Hinman

R. C. Doane

L. H. Savage

J. P. Monge

John H. Hinman has been elected to the newly created position of chairman of the board of International Paper Co. He will be succeeded as president by Richard C. Doane, vice-president and general sales manager.

Under Mr. Hinman's leadership, the company and its subsidiaries have developed the largest private forestry organization in the world. Three hundred sixty-two graduate foresters today supervise the management of the 18 million acres of land owned or leased by the companies in the United States and Canada.

Mr. Doane, whom the board has elected to succeed Mr. Hinman as president, joined International Paper in 1924 as a member of the sales department. He was elected vice-president and director of Canadian International Paper Co. in 1938, and in 1947 was appointed general manager. In 1948, he was elected vice-president and general sales manager of International Paper Co. and returned to New York. In January, 1949, he was elected to the board of directors.

Replacing Richard C. Doane, the board has designated F. Henry Savage as vice-president and general sales manager.

Joseph P. Monge, vice-president and treasurer of the company's Canadian subsidiary, Canadian International Paper Co. of Montreal, Canada, has been elected treasurer of the parent company.

Mr. Monge replaces Carl S. Volk,

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treasurer of International Paper, who has been elected vice-president and treasurer of the Canadian subsidiary. Mr. Volk joined International Paper in 1916 and was elected treasurer in 1946.

In a final change in responsibility, Mr. Hinman announced that Stuart E. Kay, who was appointed vice-president in charge of operation of the company's northern mills in 1951, has in addition been assigned the direction of the company's labor and employe relations.

Jones Promoted by Container Corp.

Container Corp. of America has appointed Frank G. Jones as Division general manager of the company's shipping container plants at Rock Island, Ill.; Fort Worth, Texas; Muskogee, Okla.; and Sioux City, Iowa; with headquarters at Rock Island.

Formerly assistant general manager of Container Corp.'s Anderson, Ind., plant, Jones has been in charge of the company's expansion program in Venezuela since July, 1953.

Mead Heads Consoweld Corp.

The Consoweld Corp., Wisconsin Rapids, Wis., capitalized at two million dollars to manufacture plastic laminate in a plant now nearing completion, held its initial shareholders meeting May 6 and named Stanton W. Mead president. Mr. Mead also is president of the Consolidated Water Power & Paper Co., a major stockholder in the new firm.

Other officers are Ralph R. Cole, vice-president, and Thomas A. Duda, secretary-treasurer. Named to serve on the board with the officers were Theodore W. Brazeau, Walter L. Mead and Donald S. Abbott. Mr. Abbott is president of the Arborite Co., Ltd., which also is interested in the new concern.

Production is scheduled to begin this summer.

Atlantic Elects Brown Vice-Pres. and Director

At the annual meeting of Atlantic Carton Corp., Norwich, Conn., and New Bedford, Mass., Robert J. Brown, formerly manager of boxboard operations at the New Bedford mill, was elected a vice-president and director.

Mr. Brown was originally superintendent of the New Bedford mill and has steadily advanced in position to his present status.

The following directors and officers were reelected: Walter E. Turner, president and treasurer; H. Clinton Atterbury, vice-president; Edward C. Herber, secretary; A. Raymond Betts and N. Gist Lamdin.

Newman Heads Paper Exporters

John H Newman, vice-president of Parsons & Whittemore, Inc., New York, and a director of Parsons & Whittemore, Ltd., London, was elected president of the United States Paper Exporters Council, Inc., at its twelfth annual meeting held May 13 at the Uptown Club, New York City. He succeeds Fred C. Strype, Jr., secretary of F. C. Strype, Inc., who served as the Council's president for the past two years.

The Council also reelected as its vice-president Joseph V. Carena, executive vice-president of Van Reekum Paper, Inc., and as its secretary-treasurer, Thomas Greiner, vice-president of American Paper & Pulp Co., Inc.

Elected to the new board of directors to serve with the officers were the retiring president, Fred C. Strype, Jr., and Frank W. Smith, president of Bulkley, Dunton Paper Co., S.A., and vice-president of Bulkley, Dunton Paper (Far East) Co.

Legal advisors to the Council are Javits & Javits of New York City.

Simkins Joins Nepco Engineering Department

A newcomer to the engineering department of Nekoosa-Edwards Paper Co., Port Edwards, Wis., is Robert E. Simkins, formerly of Seattle, Wash.

Following graduation from the University of Michigan, he worked with the Weyerhaeuser Timber Co., Everett, Wash., and Champion Paper and Fibre Co., Canton, N. C., before accepting a position with the Kalamazoo Vegetable Parchment Co., Ltd., Espanola, Ontario, where he was the engineer in charge of constructing a new kraft mill. In 1949, he moved to MacMillan and Bloedel, Ltd., Harmac Pulp Division, Nanaimo, B. C., as chief engineer.

Moulton Named Shipping Supt.

Frank Moulton has been promoted to superintendent of the shipping department of the Nekoosa-Edwards Paper Co., Port Edwards, Wis.

DeVoll Succeeds Arthur At Champion

Champion Paper and Fibre Co. has named William O. DeVoll as the company's coordinator of training and development.

Mr. DeVoll succeeds George G. Arthur, who retired on May 1, after a number of years with Champion Paper's Carolina Division as supervisor of employe training and, for the past seven years, coordinator of training for the firm's three divisional operations at Hamilton, O., Canton, N. C., and Pasadena, Texas.

Stevens Visits Sweden

Robert W. Stevens, paperboard mill consultant of Los Angeles, Calif., has gone to Sweden in his capacity as American consultant to Fiskeby Fabriks A.B. of Norrkoping, Sweden.

While there, he will attend the formal opening ceremonies of the new paperboard mill which actually started operations last December. This mill, built with Mr. Stevens acting as consultant, has commanded widespread attention throughout Scandinavia. The machine, trimming 144 inches, was built by the Black-Clawson Co.

Rayonier Man on Eisenhower's Safety Group

Appointment of Robert N. Gilmore, general safety supervisor of Rayonier Incorporated, by President Eisenhower to serve as a member of his committee on "governmental safety services to industry" was announced recently by Lyall Tracy, manager of Rayonier's industrial relations division.

Donovan Heads Specialty Converters

Douglas E. Donovan has been elected president of Specialty Converters, Inc.

Previously, Mr. Donovan, who has been associated with the firm for 26 years, was vice-president in charge of production.

Form New Container Plant

Western Containers, Inc., has been formed to operate a corrugated box business in Lockport, N. Y. The new company will purchase the physical properties of Western New York Container Corp. and Lockport Paper Products, Inc. from their stockholders, and will be affiliated with The Ohio Boxboard Co. of Rittman, Ohio. Albert W. Sterritt, president of Western New York Container Corp., will serve as president of Western Containers, Inc. and states that there will be no significant changes in personnel or policies. The new company will start operations as of May 3.

An Original

For many reasons — no two paper machines are identical as to design and construction — to emphasize one reason only — each paper mill has its individual needs or requirements of a paper machine — and it's custom-built, *an original*.

Bagley & Sewall's century of experience and continuous research in designing and building to the needs of the mill, has been outstanding as leader in the many new developments in machinery that marked the progress of the Papermaking Industry.

Let Bagley & Sewall engineering create *an original* to meet your individual requirements in new papermaking machinery or to help solve your machinery problems.

designers and builders of paper making machinery
Since 1853

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WATERTOWN • NEW YORK

Foreign Representative: **CASTLE AND OVERTON, INC., 630 Fifth Avenue, New York 20, New York**
West Coast Representative: **DAN CHARLES AGENCY, 1331 Third Avenue, Seattle 1, Washington**
Finland Representative: **AKTIEBOLAGET EKSTROMS MASKINAFFAR, Helsingfors, Finland**

NEWS OF ASSOCIATIONS

N. E. TAPPI Meeting

The New England Section of TAPPI will hold its annual meeting at Oceanside Hotel, Magnolia, Mass., on June 11 and 12. On Friday, June 11, there will be a technical session at which papers on stream pollution and application of statistics to papermaking will be presented; also, on Friday, there will be mill visits to Champion International Co. and A. & P. Corrugated Box Corp. at Lawrence, Mass.

On Saturday morning there will be held the annual business meeting followed by movies. In the afternoon there will be a round of sport and social events.

Northern N. Y. Paper Group Elects Officers

The sixteenth annual meeting of the Northern New York Paper Group was held at the Hotel Woodruff, Watertown, N. Y., May 6.

The following officers were elected for the coming year: President, H. McRorie, St. Regis Paper Co., Watertown, N. Y.; vice-president, Sam Wardwell, Knowlton Brothers, Watertown, N. Y.; treasurer, A. W. Horr, Brownville Paper Co., Brownville Paper Co., Brownville, N. Y.; secretary, M. C. Goodison, 823 Academy St., Watertown, N. Y.

The executive committee consists of the above officers and V. S. Pitkin, Brownville Board Co., Inc., Brownville, N. Y.; Charles Hirschey, Climax Manufacturing Co., Castorland, N. Y.; H. J. Wenz, Latex Fiber Industries, Beaver Falls, N. Y.; F. J. Stephens, J. P. Lewis Co., Beaver Falls, N. Y.; Frank Gutman, Racquette River Paper Co., Potsdam, N. Y.; and William Martin, Martin Pulp & Paper Co., Norwood, N. Y.

Superintendents Local Meeting Dates

DATE	DIVISION	PLACE
May 27	Michigan	Harris Hotel Kalamazoo, Mich.
June 4	Miami Valley Div.	Orr Felt & Blanket Co. Piqua, Ohio
Sept. 2-4	New York-Canadian	Saranac Inn Saranac Inn, N. Y.
Sept. 23-25	Northeastern Div.	Poland Spring House Poland Spring. Maine
Oct. 1-2	Penjerdel, Fall Meeting	Bedford Springs Hotel Bedford Springs, Pa.
Oct. 13-15	Southern & Southeastern Fall Meeting	George Vanderbilt Hotel Asheville, N. C.

TAPPI Local Meeting Dates

DATE	DIVISION	PLACE
May 27	Delaware Valley	Engineers Club 1317 Spruce Street, Philadelphia. Pa.
June	Kalamazoo Valley	Exact date and place to be announced.
June 4	Central District Empire State	University Club, 431 E. Fayette St., Syracuse, N. Y.
June 10-13	Empire State Annual Meeting	White Face Inn Saranac Lake, N. Y.
June 11-12	New England	Oceanside Hotel Magnolia, Mass.
June 18-19	Maine-New Hampshire	Marshall House New Harbor, Maine

National Meetings are shown under "Remember These Dates" on page 5.

John Evans Addresses N. E. Wood Council

At the quarterly meeting of the Northeastern Wood Utilization Council last week in Boston, John C. W. Evans, editor of *Paper Trade* JOURNAL, addressed council members on the subject of semi-chemical pulping of northeastern hardwoods.

In his remarks, Mr. Evans expanded the theme developed in his recent editorial (*Paper Trade* JOURNAL, January 8, 1954); namely, that many northeastern mills find profitable operation difficult without an integrated pulp source and that they are, therefore, missing a good bet in not moving faster to install their own small but efficient semi-chemical pulping systems.

The large stands of relatively inexpensive hardwood in the Northeast can be the means for establishing the Northeastern paper industry in a firmer economic position, he said, just as they have in other areas of the country. Mr. Evans urged the council to promote such hardwood utilization.

Annual Spring Meeting Program Empire State Section TAPPI

This meeting will be held June 10, 11, 12, at Whiteface Inn, Lake Placid, N. Y.

June 10 — 4:00 p.m. — Business meeting; Empire State Award Papers.

MORNING

June 11 — Chairman J. D. Parmele. "The Application of PE and PE Wax Blends by Extrusion and Roller Coater Methods," by G. L. Booth, Dilts Machine Div., The Black-Clawson Co.; "The Modification of Plastic Films for Specific Packaging Needs," by J. B. Sisson, St. Regis Paper Co., Central Technical Department; "The Rotobelt," Sam Orton, Jr., Orton Corp.; "New Chemical Products of Interest to the Paper Industry," John Bainbridge, Monsanto Chemical Co., B. W. Weimer, E. I. du Pont de Nemours.

AFTERNOON

"Stream Improvement" — A Symposium. Moderator: J. D. Parmele, St. Regis Paper Co. Panel members: R. M. Drummond, International Paper Co.;

V. P. Edwards, consultant; Dr. H. W. Gehm, National Council for Stream Improvement; and W. H. Larkin, N. Y. State Dep't of Health.

JUNE 12 — MORNING

Chairman S. J. Young. "Odor Testing in Paperboard," by R. T. Russell, Syracuse University; "Applications of the Hurletron Automatic Caliper and Basis Weight Control to Paper and Paperboard Machines," by C. M. Noble, Electric Eye Equipment Co.; "Developments in Flotation Deinking of Waste Paper," by J. W. Jelks, representing the Denver Equipment Co.; "New Chemical Products of Interest to the Paper Industry," Warren Kumblad, Socony Vacuum Oil Co.; "The Ancient Art of Chinese Paper Making," a movie presented by E. D. Jones & Sons.

OBITUARIES

William H. Lee, 78, chairman of the board of directors of the Lockport Felt Co., died in Lockport, N. Y., on April 29. Mr. Lee was a prominent figure both in the papermaking and textile industry for the past 50 years. Having joined the company in 1905 in a minor capacity and during a precarious period in the organization's corporate history, he was solely responsible for the solid growth and expansion that finally placed the Lockport Felt Co. among the leaders in the industry.

Soon after Mr. Lee joined the company, his abilities and energy were recognized and within a few years' time he became its guiding genius and in all respects the founder of the company as it is known today.

As a pure act of faith in his own ability and in the future of the company, with which he had cast his lot, Mr. Lee sank every spare dollar at his disposal into the stock of the organization until working control was securely in his hands.

After having established the Lockport Felt Co. as a sound unit, his interests broadened and he became associated with many and varied civic and political

putting the finger on BUBBLES

Children love to make bubbles and to break them. But paper mill men don't eye bubbles with any similar glee. They don't want foam in their paper machines. So they look for a sure way to prevent it *before* bubbles are formed.

De-Airex provides that way. De-Airex is a liquid defoamer that is easily mixed with water. No fussy premixing is required, and it remains stable without continual stirring. What's more, De-Airex leaves no troublesome traces in the finished paper.

Why not try De-Airex in your own mill! The Houghton Man will gladly arrange a convincing test under your own mill conditions. Your regular production will not be delayed. Get in touch with him . . . or write to E. F. Houghton & Co., 303 W. Lehigh Ave., Philadelphia 33, Pa.

DE-AIREX FOAM KILLER

. . . a product of

E. F. HOUGHTON & CO.
PHILADELPHIA · CHICAGO · DETROIT · SAN FRANCISCO

Ready to give you on-the-job service . . .

affairs, where his qualifications for conservative and constructive leadership were quickly recognized.

Mr. Lee served as a New York Senator for six years and was a member of the executive committee of the Republican Party in Niagara County. On several occasions he was representative for his party at both State and National Conventions. He was a pioneer in business aviation as early as 1929 when the present air service of the company had its inception.

When Mr. Lee joined Lockport, it had but 14 employes and was desperately in need of cash. Upon his death, the company had 250 employes working in a model and efficient plant equipped with the most advanced machinery available.

Mr. Lee, although not in good health for some time, visited the plant of the company on the afternoon of the day of his death, a demonstration of his devotion to the thing he had created.

Surviving are his widow, Elizabeth M. Lee, and his only son, president of the Lockport Felt Co., Raymond J. Lee.

Charles D. Harris, 43, manager of The Union Paper & Twine Co., Inc., Buffalo, N. Y., died May 4. He was a salesman for the Alling & Cory Paper Co. of Cleveland for 13 years before accepting the Buffalo post in 1948.

John A. C. Kavanagh, director of the Paper Bag Institute, Inc., since 1937, died in New York City on April 30. Mr. Kavanagh had also served the Flexible Packaging Institute in the same capacity.

Willoughby Francis Hill, 60, inventor of the Lily cup and the paper frill for lamp chops, died of a heart attack May 9 in New York City.

He played an important part in the adoption of most states of laws forbidding the use of public drinking cups.

Shortly after the end of World War I, he visited Central Park and ripped a public cup from its chain at a fountain. A laboratory examination showed it to be dangerously contaminated. The incident aroused such attention that within less than a year three-quarters of the states passed laws governing the use of cups.

Mr. Hill studied engineering at Columbia University. While a student, he became interested in the development of cup-making machinery and dropped his studies to devote full time to the pursuit.

He and a brother shortly afterward perfected the machinery and formed a holding company. Later, with Simon Bergman, they formed the Lily Tulip Cup Corp.

Merle M. Davis, 67, a Hammermill district sales manager for nearly thirty years, died May 13.

Prior to joining the Hammermill organization in January, 1917, Mr. Davis had been employed at the Ashtabula office of the New York Central Railroad. He left that job to become Hammermill's traffic manager, a position he held until 1925.

James P. Tyrrell, 67, district sales manager of The Northwest Paper Co.'s Minneapolis office, died April 30 at St. Joseph's Hospital in St. Paul, Minn.

Mr. Tyrrell entered the employ of The Northwest Paper Company on January 1, 1926, and all of his service with the company was in the Twin Cities territory. He has been in the paper business for over 50 years.

Marathon Plans New Food Packaging Plant

Marathon Corp., Menasha, Wis., is planning construction of a food package manufacturing plant at Modesto, Calif., to serve food processors in that area.

The firm has acquired a 22-acre tract and construction is expected to begin this fall, with the plant scheduled for completion next spring. Present plans call for a single story building with about 100,000 sq. ft. of floor space.

Ferguson's ability to hold down costs in materials' purchasing as well as every phase of construction, assures you more for your pulp and paper mill expansion dollar.

From plans to completed plant, rigid control of the work keeps expenditures under predetermined appropriations. Our chief aim at all times is sound economic design and rapid construction.

THE H·K·FERGUSON COMPANY
ENGINEERS AND BUILDERS

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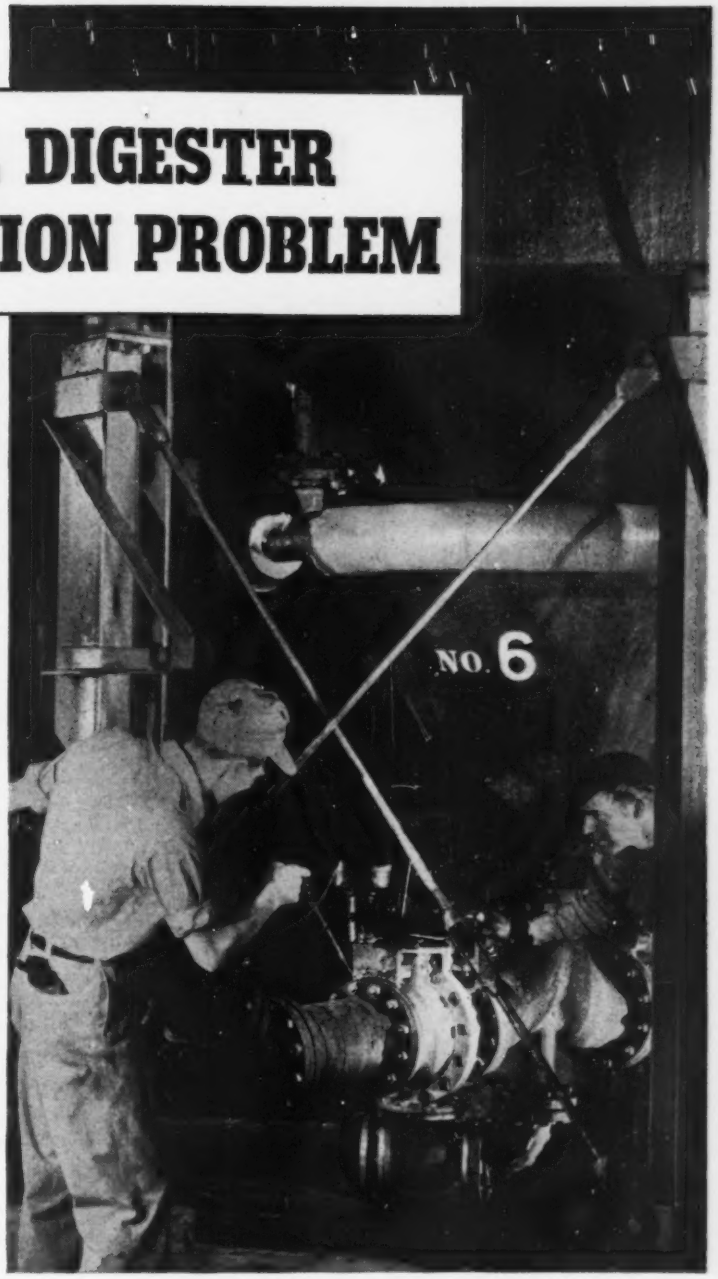
CLAD STEEL DIGESTER BEATS CORROSION PROBLEM

This big Northwest papermaker had an expensive equipment replacement headache. Corrosion was cutting digester life short. Then it was decided to specify stainless clad steel in the fabrication of these vertical sulphate digesters. There was no other design change. Now, increased equipment life alone has saved thousands of dollars in replacement costs.

Clad steel in these digesters furnishes the corrosion resistance of expensive solid high-alloy plate at much lower original costs. Highly corrosive "cook" working at 300° F. can't get behind the permanent and integral bond of cladding to backing steel. The sudden pressure change of "blows" and the shock of cold charges hitting hot digester walls don't faze it. And the clad steel surface is free from indentations and ripples which accelerate scale build-up.

In digesters, evaporators, filters, head boxes, acid storage tanks and other key equipment, you can meet the needs of your process problems. Be sure you have a combination of good engineering, the economical versatility of clad steels, and the knowledge and resources of a *qualified* fabricator. Whether you are looking for reduced costs in original equipment . . . high product quality . . . increased throughput . . . or economy in maintenance, it pays to consult your equipment builder *early* in your planning. Working with your engineers and consultants, he can help you obtain the equipment dependability and efficiency your process demands.



Economical clad steel sulphate digesters save thousands in replacement costs alone.

Ask one of your fabricators to show you the new Lukens clad steel movie, "Equip for New Profits." Here—in full color and sound—are factual accounts of how clad steel equipment brings new economies. The story can suggest new ideas to everyone concerned with production efficiency. Or contact Manager, Marketing Service, Lukens Steel Company, 683 Lukens Building, Coatesville, Pa.

LUKENS CLAD STEELS

STAINLESS-CLAD · NICKEL-CLAD · INCONEL-CLAD · MONEL-CLAD

PRODUCER OF THE WIDEST RANGE OF TYPES AND SIZES OF CLAD STEELS AVAILABLE ANYWHERE

PRICES

MARKET WOOD PULP

Second Quarter Contract Prices Per Short Air-Dry Ton

	Delivered Basis		Varying Freight Allowances		
	U.S.	Canadian	Swedish	Finnish	Norwegian
Groundwood		‡$60.00/$95.00*	$77.50/$82.50§	$80.00/ —	
Kraft, Bleached	140.00/147.50	145.00/150.00	$140.00/142.50§		‡$142.50/ —
Semi-bleached, Kraft	130.00/135.00	130.00/135.00	$130.00/135.00§	130.00/135.00*	
Kraft, Unbl.	95.00/105.00	100.00/135.00	*105.00/110.00*	*105.00/135.00*	
Sulphite, Blchd.	140.00/ —	140.00/ —	$135.00/140.00*	140.00/ — *	$135.00/142.50*§
Sulphite, Unblchd.	120.00/ —	120.00/ —	$115.00/122.00*	120.00/125.00*	
Sulphite, Unbl. Gl'sn.		124.00/ —	*124.00/ —		
Soda, Blchd.	140.00/ —	140.00/ —			

‡ F.o.b. Shipping Point. § On Dock Atlantic Ports. * Freight allowed.

RAG MARKET

New Domestic Cotton Cuttings

Delivered Mill Basis

	Per 100 lbs.
No. 1 White Shirts	$12.50/$13.00
No. 1 Unblchd. Muslins	14.50/ 15.00
Blchd. & Unblchd. Underwears	15.50/ 16.00
Blchd. Canton Flannels	11.00/ 11.50
No. 1 Light Silesias	7.50/ 8.00
No. 1 Light Prints	6.00/ 6.50
No. 1 Blue Overalls	7.25/ 7.75
Suntan Khakis	5.50/ 6.00
Fancy Shirts	6.50/ 7.00
Mixed Khakis	3.50/ 4.00
Cottonades	3.75/ 4.25
No. 1 Washables	3.50/ 3.75

Old Domestic Cotton Rags

(Prices to Dealers, F.o.b. Ship. Pt.)

	Per 100 lbs.
Mixed White	$2.75/$3.00
Cotton Pants & Overalls	2.00/ 2.25
Thirds and Blues, Repacked	1.65/ 1.75
No. 2 Roofing Rags	nominal

COTTON LINTERS

Memphis Market

F.o.b. Oilmills

		May 11 Per 100 lbs
Grade 1	n.a.	
2		n.a. / $9.00
3	1st cut—felting	8.00/ 6.50
4		6.00/ 4.50
5		4.25/ 3.25
6	* 2nd cut—chemical	3.00/ 3.00
7		3.00/ 3.00

* Based on 73% cellulose.

Bagging

(Prices to Dealers, F.o.b. N. Y.)

	Per 100 lbs
Foreign Gunny	$4.00/$4.50
Foreign Scrap Burlap	3.00/ 3.75
Heavy Wool Tares	4.00/ 4.25
Austr. Wool Pouches	4.00/ 4.50
Domestic Manila Rope	5.50/ 6.00
Domestic No. 1 Sisal Strings	5.00/ 5.25

WASTE PAPER MARKET

Mill Prices, F.o.b. Car Shipping Point - Includes Brokerage

These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal. See TRENDS.

	New York	Boston	Chicago	Phila.
	May 14	May 15	May 7	May 14
No. 1 Mixed Paper	$5.00/ 8.00	$10.00/ 11.00	$7.00/ —	$8.00/ 9.00
No. 1 News	9.00/ 12.00	12.00/ —	15.00/ —	12.00/ 13.00
Overissue News	15.00/ 17.00	16.00/ 20.00	18.00/ 20.00	17.00/ 18.00
Mill Wrappers	8.00/ 17.00	12.00/ 15.00	10.00/ —	12.00/ 18.00
Old Corrugated Containers	10.00/ 13.00	15.00/ 16.00	16.00/ —	12.00/ 15.00
No. 1 Sorted Br. Kraft Paper	40.00/ 45.00	35.00/ 50.00	37.00/ —	35.00/ 45.00
New Double Kr. Ld. Corr. Cuts	40.00/ 50.00	42.50/ 50.00	40.00/ 50.00	40.00/ 50.00
New 100% Kraft Corr. Cuts	55.00/ 62.50	50.00/ 60.00	60.00/ 62.50	55.00/ 60.00
New Br. Kraft Env. Cuts	70.00/ 75.00	65.00/ 77.50	65.00/ —	65.00/ 70.00
New Br. Kr. Bag Waste Prntd.	65.00/ 75.00	65.00/ 75.00	55.00/ —	60.00/ 70.00
No. 1 Groundwood Shvs.	25.00/ 35.00	25.00/ 30.00	25.00/ —	20.00/ 25.00
White Newsblanks	60.00/ 65.00	45.00/ 55.00	40.00/ —	60.00/ 65.00
No. 1 Soft Wht. Shvs., coated	60.00/ 70.00	70.00/ 80.00	65.00/ —	65.00/ 70.00
Hd. Wht. Shvs.	100.00/105.00	95.00/110.00	100.00/ —	100.00/105.00
Hd. Wht. Env. Cuts	120.00/130.00	110.00/130.00	105.00/ —	120.00/130.00
Col. Tab. Cards	45.00/ 55.00	55.00/ 60.00	50.00/ —	45.00/ 55.00
Manila Tab. Cards, bales	75.00/ 85.00	80.00/ 85.00	75.00/ —	75.00/ 85.00
No. 1 Col. Ledger	37.00/ 45.00	40.00/ 50.00	45.00/ —	35.00/ 45.00
White Ledger	57.50/ 65.00	60.00/ 65.00	55.00/ —	60.00/ 70.00
Mixed Book & Mag.†	18.00/ 19.00	18.00/ 22.50	12.50/ —	18.00/ —
No. 1 Rep'd. Hvy. Books‡	25.00/ 30.00	25.00/ 35.00	27.50/ —	30.00/ —

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% groundwood. § Deld.

PRICES OF MATERIALS

Aluminum sulphate:			
cml. bags, c.l. wks.	cwt.	$1.85	/ —
iron-free, c.l. wks.	cwt.	3.55	/ —
Casein, acid prec.:			
dom. sh. pt. c.l.	lb.	.24	/ .30
Arg. ex. dock, duty paid		.20	/ .21
New Zeal. do.		.22	/ .23
Caustic soda:			
c.l. wks. solid, 76%	cwt.	3.70	/ —
flak. & grd. 400-lb. drums, c.l.		4.10	/ —
liquid 50% tanks		2.55	
liquid 70% tanks		2.65	
China clay:			
dom. air-float, c.l. wks.	ton	10.00	
water-washed, lump, filler	ton	11.00	
coating	ton	17.60	/30.50
Imported, ex. ship.	short ton	16.00	/30.00
Chlorine:			
single-unit tanks, works	cwt.	2.93	/ —
multiple unit, 2-5 cars per yr.		3.83	/ 5.00
Formaldehyde:			
USP, inh. dms. c.l. wks	lb.	.0666/	—
l.c.l., E. wks.	lb.	.071	/ —
Lime:			
hydrated bags, wks.	tons	14.50	/15.50
Gum rosin:			
K, M, N, drms, c.l. Savan, cwt.		7.50	/ 7.60
Rosin size:			
70%, gum & pale grds., tank cars, south, sh. pt.	cwt.	6.60	/ 6.65
Salt cake:			
dom. bulk, c.l. wks.	ton	19.00	/ —
Soda ash:			
light, 58%, bags, wks.	cwt.	1.65	
bulk	cwt.	1.35	
Sodium silicate, 40° Be.:			
tank-cars, wks.	cwt.	1.00	/ —
drums, c.l. wks.	cwt.	1.35	/ —
42° Be. WW,			
tank-cars, wks.	cwt.	1.60	/ —
drums, c.l. wks.	cwt.	1.95	/ —
Sodium peroxide:			
dms. c.l. E. of Miss.	lb.	.186	
l.c.l. do	lb.	.191	/ .201
Soybean, protein:			
chem. isol., wks. c.l. bags.	lb.	.25	/ .25½
Sulphuric acid:			
60° Be. cbys. c.l. wks.	cwt.	1.75	/ 2.00
l.c.l. wks.	cwt.	2.30	/ 2.45
tank-cars, wks.	ton	16.30	/18.60
Sulphur:			
crude, c.l. mines, contract,	long ton	25.50	/27.50
f.o.b. vessels Gulf	do.	27.50	/30.50
Sulphur dioxide:			
liquid, coml. cyl., wks.	lb.	.09	
multi-unit cars	lb.	.0535	
Starches:			
corn, multiwalls, c.l. prod. plant:			
pearl	cwt.	6.39	/ —
white, dextrines	cwt.	7.78	/ —
chlorinated	cwt.	8.14	/ —
potato, Idaho, c.l. wks. W. cwt.		6.30	/ —
East, fr. all. 50 cents cwt.			
potato, Maine, f.o.b. wks. cwt.		6.25	/ — nominal
Talc:			
domestic, sacks, c.l. wks.	ton	25.00	/30.00
Titanium dioxide:			
anatase, c.l. deld. E. bags	lb.	.22½/	.23
l.c.l. deld.	lb.	.23½/	.24
rutile, c.l. deld.	lb.	.24½/	.25
l.c.l. deld.	lb.	.25½/	.26

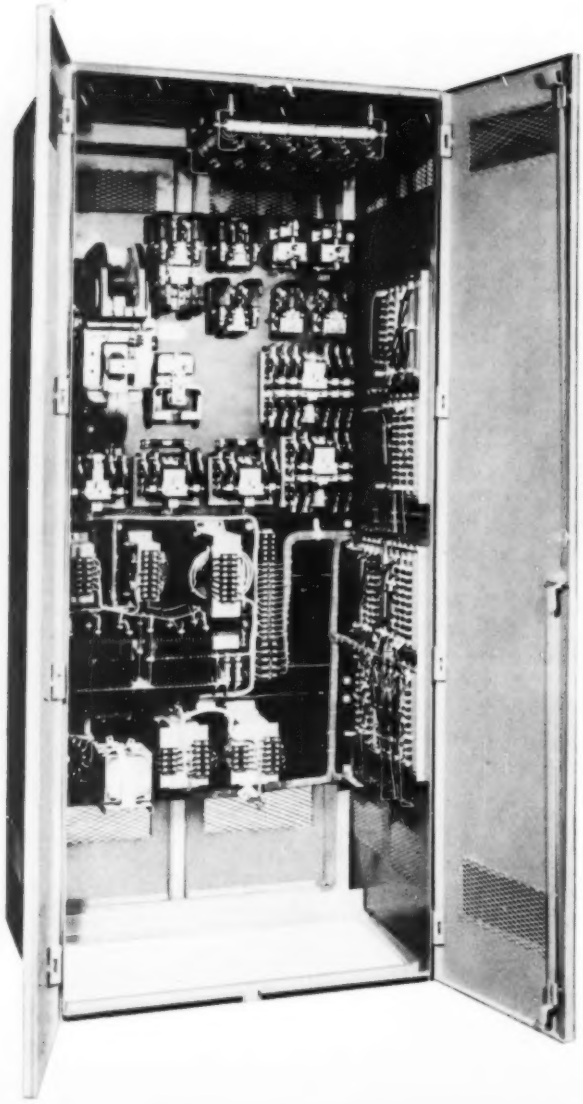
My problem was to boost our paper production

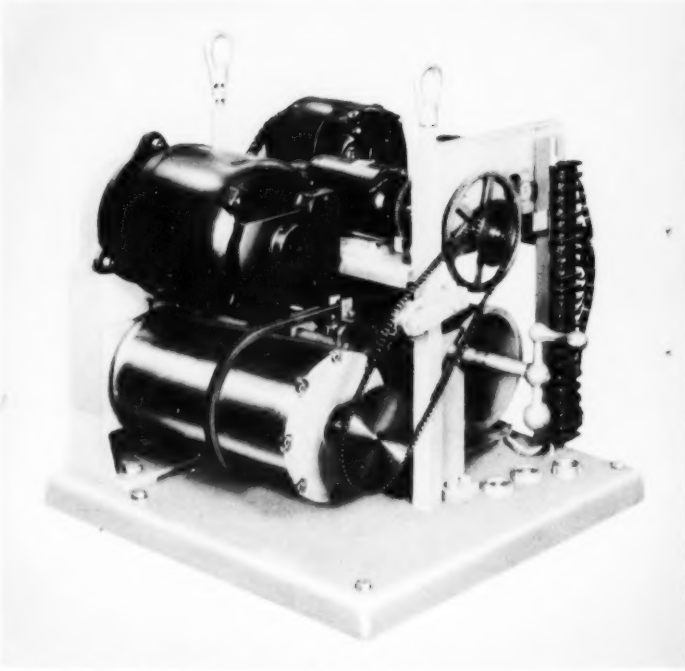
Coordinated Westinghouse drives, masterminded by a new device called Magamp, are your key to increased production and reduced maintenance

MOTORS provide ample and reliable power

MAGAMP CONTROLS maintain draws accurately

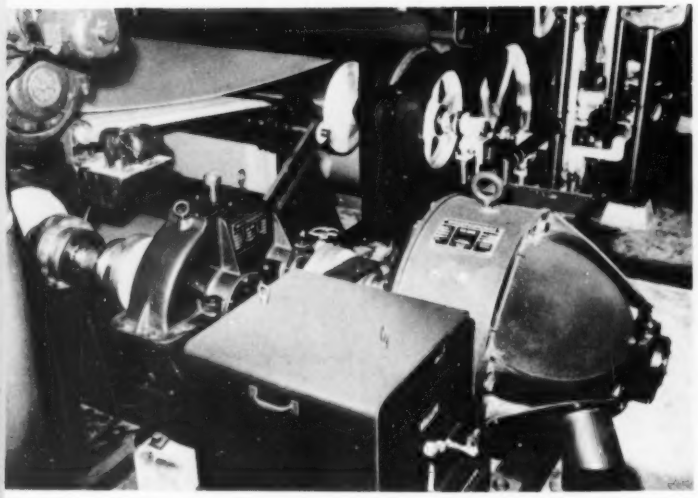
GEARING transmits power dependably, economically



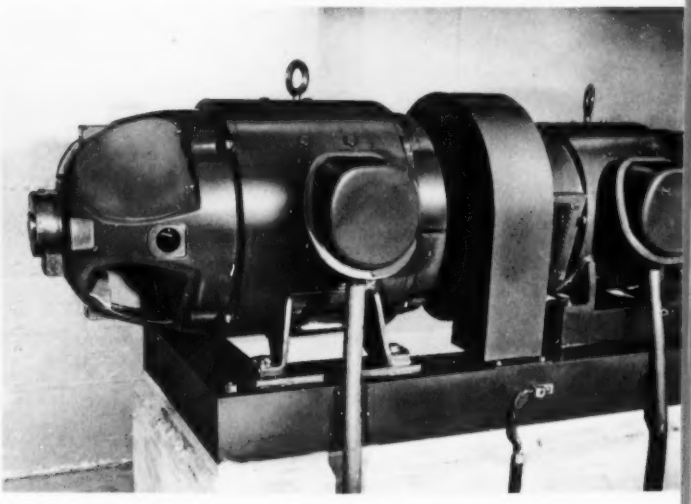


Error detecting unit compares the individual section speed with the master set frequency. Any difference is transmitted to the Magamp regulator which brings the section speed in step.

◀ **Magamp control** used with differential regulator maintains the proper speed on each section under practically all conditions. It does this regardless of changes in load, variations in vacuum, changes in nip pressure and doctor blade pressures.



D-c motor coupled to reduction gear unit—here's a typical section driving unit. Totally-enclosed and force-ventilated, the unit is, in turn, coupled to the paper machine's press section.



Master frequency m-g set supplies an adjustable frequency reference to the individual section speed regulators for securing any operating speed. Flywheel compensates for inertia differences.

Magamp helps Westinghouse drive deliver what we asked for

Paper machines vary in size, type and number of sections, operating speed range, width of sheet and type of paper produced. In every case, the drive must be engineered to meet these variable factors. After asking you, the papermaker, what you needed most in a drive, Westinghouse modernized its sectional motor drive to give you minimum down time, peak production, and less maintenance.

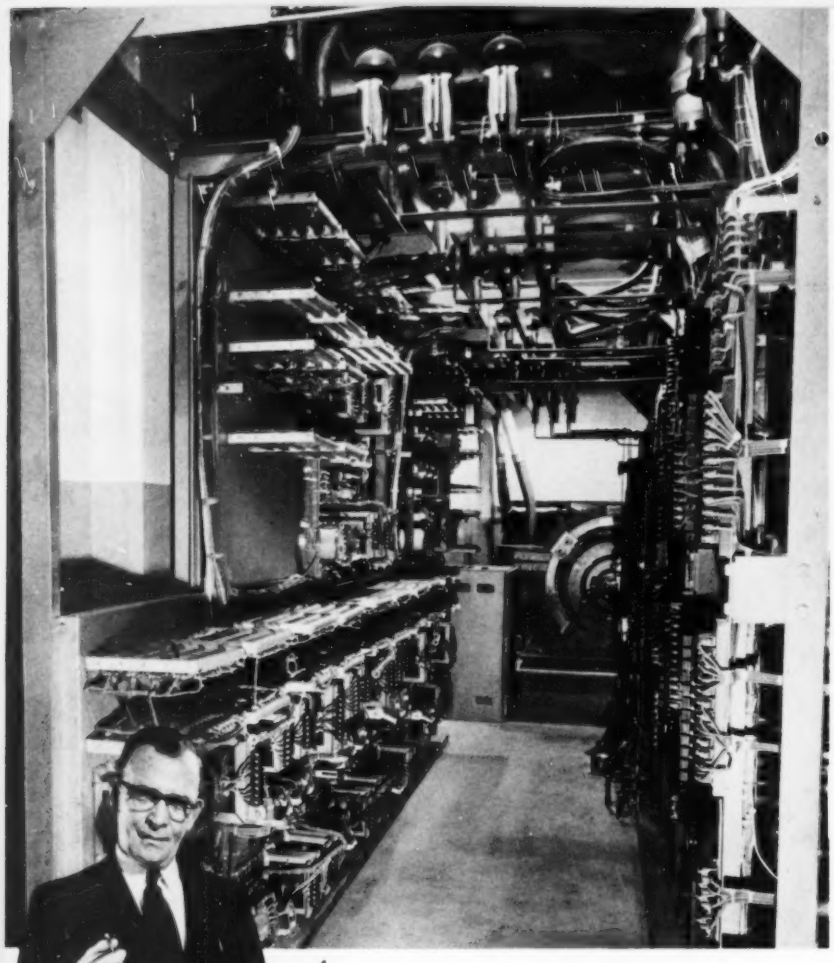
Westinghouse Magamp (Magnetic Amplifier) regulator—a unit that precisely controls section speeds and draws—permits high operating speeds without paper breaks. It's a static device with no tubes and no moving parts other than the cone pulleys and reference motor. Magamp is more rugged, reliable, and requires less maintenance than any other type of regulator now on the market. Elimination of line shafting, with its associated belts, pulleys and clutches, is a safety factor and a space saver. Magamp regulated drive cuts outage time and operating costs. Initial base adjustments, once made, remain unchanged during the equipment's life.

Every Westinghouse paper machine drive is an engineered application. Each unit of apparatus is selected to meet job requirements and specific mill conditions. The heavy, rolled steel frame of the Type SK d-c motor, with uniform magnetic qualities, makes it possible to duplicate speed characteristics accurately. Form-wound armature coils, cast brass brushholders, separate field coil units, deep commutator segments, and either sleeve or antifriction bearings provide maximum life and dependability.

Gear units and gearmotors are designed and built by Westinghouse to give you dependable and economical power transmission. Motor speeds are reduced to the roll speeds of each driven section by efficient, single helical gears and tapered roller or ball bearings. The exclusive Westinghouse B.P.T. taper-hardened process is used on all gears and pinions. Horizontal split case construction makes all parts easily accessible for quick, simple inspection without disconnecting couplings, draining the oil, or dismantling the drive.

YOU CAN BE SURE...IF IT'S

Westinghouse



Operator's master control station shows speed indicator and provides for the automatic control of the machine functions.

An individual operator's control station has an ammeter for load indication, draw adjusting handle and control buttons.

Main d-c control unit for single-generator drives consists of individual panels mounted on a self-supporting steel frame. Factory-wired and assembled, the unit's quickly, easily accessible.

Magamp control boosted our paper machine production

With Magamp sectional drive, operators control the machine from stations located at convenient points around the machine. These include a master control and individual section control stations.

Operating speed of the complete machine may be adjusted from the master control station, either by a pre-set rheostat or fast-slow pushbuttons. A motor-operated rheostat, located in the control unit, adjusts the machine speed at a rate which won't interfere with maintenance of draw between sections. This permits production speed adjustments with a sheet on the machine.

If you're planning to expand your mill or modernize your present machines, telephone your nearby Westinghouse representative. For further ideas, write for these booklets: *Magamp Sectional Drives for Paper Machines* (B-6109), *Magamp Regulator for the Paper Industry* (B-6073), *Auxiliary Helper Drives* (B-6126), *Westinghouse Speed Reducers* (B-5646), *Westinghouse Gearmotors* (B-5645). Westinghouse Electric Corporation, 3 Gateway Center, Pittsburgh 30, Pennsylvania. MP3023

NATIONWIDE MAINTENANCE NETWORK

38 large and well-equipped Westinghouse Apparatus Repair Shops are available for maintenance jobs on every conceivable type of electrical apparatus. 56 Field Service Offices are ready to make inspections, adjustments and on-the-spot repairs for equipment that can't be moved easily. Fast delivery of genuine Westinghouse Renewal Parts from stock in 31 locations enables you to keep low parts inventories at your plant. Call your Westinghouse representative for any of these services and write for *Preventive Maintenance* (B-5477-A).

YOU CAN BE **SURE**...IF IT'S Westinghouse

NEWS OF SUPPLIERS

H. A. Burdorf

M. W. Pauly

H. H. Layritz

• LUNKENHEIMER CO., 92-year-old valve manufacturer of Cincinnati, Ohio, announced two new appointments in the top sales management of the company.

Melvin W. Pauly becomes general manager of sales, and Harold H. Layritz assistant general manager of sales.

Mr. Pauly joined the company in 1950 as New York manager, and later became sales manager, eastern division. Mr. Layritz was previously sales manager of the central division. He is a 27-year veteran with the long established valve manufacturer.

Harry A. Burdorf, vice-president in charge of sales, is starting his 50th year with the company. He joined Lunkenheimer in 1905 as a draftsman in the tool design department, showed an early interest in sales and was soon transferred to that department, becoming sales manager in 1922, and vice-president in charge of sales in 1940.

A. W. Ayles

• MORNINGSTAR, NICOL, INC., New York City, suppliers of starch, dextrine and natural gum products, have announced that A. Walter Ayles has joined the firm and has been assigned to the Southern territory to handle sales and service for their Paper Mill Department.

The territory that Mr. Ayles will cover ranges from Virginia to Florida and across the gulf coast states to Arkansas and Texas. His headquarters will be located in the Jacksonville, Fla., area. He brings to his new connection a well-rounded practical experience in all phases of paper mill production.

Mr. Ayles, an alumnus of Syracuse University, began his paper mill career as chemist with the Dexter Sulphite Pulp & Paper Co. in 1932 and progressed through posts of chemist, chief chemist, and assistant general manager until 1941, when he joined the sales and service staff of American Cyanamid Co. Since 1949, until his recent appointment, he covered the Wisconsin, Minnesota, Upper Michigan area for Penick & Ford Co., Ltd.

Mr. Ayles will serve as field installing engineer for Southern mills who are interested in the new Morningstar process of continuous cooking of Mannogal products, which is designed to give the papermaker a flexible production tool for controlling the addition of these compounds to meet individual mill requirements for greater strength, economy, and faster production.

R. W. Moister

• MICHIGAN ALKALI DIV. of Wyandotte Chemicals Corp. has named R. W. Moister resident sales representative in

FOURDRINIER MACHINE
FOR SALE

Horne, right hand 80" trim Fourdrinier machine.

Wire 88" x 58'. Valley slice. 16" dia. brass breast roll, anti-friction bearings. 41—4" brass table rolls, anti-friction bearings. 4 suction boxes. Brass wire rolls, hand and automatic guides and stretcher. 22" dia. Millspaugh suction couch.

Three presses. Swing arm housings, weight and lever system and roll raising mechanism top rolls have oscillating doctors. Third press reverse. Complete felt equipment. Press roll bearings are plain babbitted, water cooled. First press has 18" dia. granite top, 16" R.C. bottom rolls. Second press 18" dia. brass top, 16" dia. R.C. bottom rolls. Third press 18" dia. brass top, 16" dia. R.C. bottom.

Dryer section is arranged double deck. One 28" lead-on dryer. 18—48" dia. x 84" face Horne dryers. Top and bottom felt equipment. Plain bearings grease lubricated. 9" spring roll.

Calenders, 1—7 roll and 1—9 roll stacks. Box type frames, roll raising and weight systems. Plain bearings. Approximate roll sizes are 18" dia. bottom, 14" dia. top and next bottom and 9" dia. intermediates.

Drives are open bevel mortise gear self contained, babbitt bearings. Line shaft for overhead mounting, plain bearing equipped.

2—#2 Bird screens, one has copper, the other stainless steel vats.

The above machine available for immediate shipment.

Write for full particulars and price.

THE BLACK-CLAWSON COMPANY
SHARTLE BROS. MACHINE DIVISION
Used Equipment Department
MIDDLETOWN, OHIO

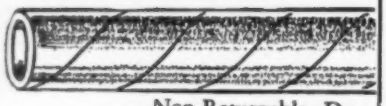
M-21

It will speed the reply to your inquiry to mention Paper Trade Journal.

CHAS. T. MAIN, INC.
CONSULTING ENGINEERS
Process Studies, Design, Specifications and Engineering Supervision
PULP AND PAPER MILLS
Steam, Hydraulic and Electrical Engineering
Reports, Consultation and Valuations
80 Federal Street Boston 10, Mass.

THE CARTHAGE MACHINE COMPANY
CARTHAGE, NEW YORK
Manufacturer of
Machinery and equipment for Mechanical and Chemical Pulp Mills and Special Machinery

MERKOR



Non-Returnable, Durable standard mill core.

GARTEX

Returnable and Non-Returnable extra strong mill core for regular and special needs.

MADE TO YOUR SPECIFICATIONS
Write for samples and prices
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TRENTON, NEW JERSEY
Sales Offices:
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PHILA., PA., PHONE MARKET 7-3313
J. E. FRICKE CO.

AMERICAN PAPER AND PULP ASSOCIATION'S PAPER PRODUCTION RATIO REPORT

(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

1954	Apr. 10 94.6	Apr. 17 93.3	Apr. 24 91.3	May 1 90.9r	May 8 94.6
1953	Apr. 11 91.1	Apr. 18 93.6	Apr. 25 94.1	May 2 93.6	May 9 94.6

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1953	94.5	94.6	94.4	92.7	93.9	93.8	82.2	94.7	92.7	97.2	94.6	82.8	92.3
1954	94.2‡	94.5‡	93.7‡	92.5‡									

COMPARATIVE YEARLY SUMMARIES

	1947	1948	1949	1950	1951	1952	1953	1954
Year to Date	105.3	100.9	89.9	95.4	101.7	95.3	94.4	93.8
Year Average	101.7	92.1	83.7	95.8	98.0	88.6	92.3	

‡ Preliminary.
r Revised.

PAPERBOARD OPERATING RATIOS†

1954	Apr. 10 89	Apr. 17 91	Apr. 24 87	May 1 87	May 8 87
1953	Apr. 11 90	Apr. 18 96	Apr. 25 95	May 2 97	May 9 94

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1953	91	95	95	95	96	93	81	98	94	97	94	79	93
1954	89	89	90	88									

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

Note: In the above tables *all* the ratios shown are on the basis of a normal 6 and 7 day capacity.

† Per cents of operation based on "Inch-Hours" reported on a 6-day basis to the National Paperboard Association.

the Central District office, effective May 1st. Mr. Moister will reside in Atlanta, Ga., and work within the states of North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi and Tennessee.

Mr. Moister is a veteran of 19 years of service with Wyandotte. In his new assignment he will be returning to a territory he served for 12 years, from 1935 to 1947. More recently he has worked out of the Eastern District office of the corporation in New York.

• BABCOCK & WILCOX CO.'s Research and Development Center has announced the following appointments.

P. R. Grossman to chief research engineer with responsibility for all work undertaken by the products, materials and technical sections of research and development, both at the Center and in the field; A. F. Boehm, manager of facilities with responsibility for office management and maintenance; G. A. Watts to superintendent of products section; J. F. Wachunas to superintendent of the technical services section; and W. O. Stone, Jr., to purchasing agent of the Center.

W. F. Gerrow

• GOODYEAR TIRE & RUBBER CO.'s Chemical Division has named William F. Gerrow district manager of a newly formed Southeastern territory.

Mr. Gerrow will headquarter in Atlanta, Ga., and will supervise all sales activities of chemical materials in Georgia, Florida, Alabama, Mississippi, Tennessee and the Carolinas.

Until his recent promotion, Mr. Gerrow had been serving as a special representative in Atlanta.

ALVIN H. JOHNSON & CO.
INCORPORATED
415 LEXINGTON AVENUE
NEW YORK (17), N. Y.
Consulting Engineers to
The Pulp and Paper Industry
Since 1929

W. W. Frymoyer

• FOXBORO CO., Foxboro, Mass., has elected W. W. Frymoyer a vice-president.

Joining the firm in 1926, Mr. Frymoyer served as director of research and in 1939 was appointed general superintendent. Since 1951, he has been factory manager and will continue in this capacity, supervising all instrument manufacturing activities of the company.

F. M. Zorn

• WYANDOTTE CHEMICALS CORP., Michigan Alkali Div., has appointed F. M. Zorn as assistant to the sales manager, general products group, inorganic chemicals, and L. M. W. Behm as manager of order and scheduling.

Mr. Zorn has been with Wyandotte for 15 years and prior to his new appointment was manager of the order and scheduling department.

Mr. Behm joined Wyandotte in 1910 and is well qualified for his new post — having spent much of his 44 years with the company in order and scheduling work.

• BLACK-CLAWSON CO.'s three main divisions will be closed for summer vacation during the period from July 19 through August 1. The three divisions are The Black-Clawson Div., Hamilton, Ohio; Shartle Bros. Machine Div., Middletown, Ohio; and the Dilts Machine Works Div., Fulton, N. Y. All will resume normal operations on Monday, August 2.

NASH ENGINEERING COMPANY
421 WILSON AVE., SO. NORWALK, CONN

PAPER TRADE JOURNAL CLEARING HOUSE PAPER TRADE JOURNAL

RATES FOR ADVERTISING (PAYABLE IN ADVANCE) $.75 cents per line (6 words to line) minimum charge $3.75 —Additional charge of 70 cents if box number is used

Situation wanted advertisements can be repeated for ½ rate

Space in this section can also be purchased at $5.00 per column inch—(1" x 2¼)

Address replies to advertisements appearing under Box Number in care of PAPER TRADE JOURNAL, 15 West 47th Street, New York 36, N. Y.

HELP WANTED

POSITIONS OPEN

We can place managers, superintendents and assistant superintendents for tissue, rag content, bogus bristol and blotting paper mills.

Technical directors, chemists and chemical engineers (several); finishing foremen; cylinder and fourdrinier mach. foremen; power plant supervisors; designers, draftsmen, master mechanics and plant engineers.

Industrial—timestudy engineers; ink room foreman; salesmen to sell paper, also starch, adhesives, mechanical equipment, etc.

If available for position in paper or pulp mfg. or paper converting, SEND US YOUR RESUMEZ. It will be in confidence. No charge unless you accept employment through our Service.

CHARLES P. RAYMOND SERVICE, Inc.
Phone: Liberty 2-6547
294 Washington St. Boston 8, Mass.
M-21

WANTED: Sales manager to develop and manage sales of Southern mill in Eastern area. Must have broad experience in field of bleached kraft paper and board converting specialties. Will be located in New York City. Reply Box 54-190. Care Paper Trade Journal.
M-21

ASSISTANT PLANT SUPERINTENDENT, for large cigarette manufacturing plant in Manila, Philippines. Must have complete knowledge of blending, machinery, manufacturing details. Excellent opportunity for right man. All replies held in strictest confidence. Interviews in New York. Write Box 54-185. Care Paper Trade Journal.
M-21

WANTED—Aggressive production superintendent, not over 45, for two machine, middle western mill, making the better grades of book and offset papers. Prefer man now employed possibly as assistant who feels there is no immediate chance for promotion. Must have had considerable paper machine experience. Thus capable of instructing machine crews in best methods for efficient production. Chemical knowledge not a requisite. Our vacancy due to intended promotion of our present supt. In application please be detailed in outline of your working record and state salary desired. Your letter will be treated in strict confidence. Address reply to Box 54-178 care Paper Trade Journal.
M-28

WANTED — SALES ENGINEER

Stock preparation machinery and equipment for the peper industry. Mechanical Engineering, papermaking and sales experience desired. Excellent future and job security. Send resume of qualifications and experience to Box 303, Monroe, Ohio.
J-4

WANTED

Man with practical experience to take charge of small semi-chemical pulp plant. Must be capable of breaking in entirely new crew. Chemical background desirable but not essential. Write or call, W. A. Crawford, Prairie State Paper Mills, Joliet, Illinois. Phone 3-3441.
J-25

HELP WANTED

TOUR BOSS

in mill making high-grade specialties. Interchangeable shifts 4 P.M. to 12 and 12 to 8 A.M. Good opportunity for person qualified. If interested give age, experience and advise if presently employed. All information will be in strict confidence. Address Box 54-182 care Paper Trade Journal.
M-21

CHEMIST OR CHEMICAL ENGINEER

Opportunity available for Chemist or Chemical Engineer in an expanding pulp and paper mill located in the Middle Atlantic States. Age 25-35 years with several years experience in pulp and paper chemicals and fibers. Good salary with excellent opportunity for advancement. Send resume of educational background and industrial experience. All replies confidential. Address Box 54-183 care Paper Trade Journal.
M-28

MACHINE TENDER

EXPERIENCED ON CYLINDER MACHINE MAKING FOLDING BOARD. GOOD LIVING AND WORKING CONDITIONS. LIFE INSURANCE AND HOSPITALIZATION. STEADY EMPLOYMENT, GOOD PAY. BOX NO. 54-175 CARE PAPER TRADE JOURNAL.
M-21

MACHINE TENDER

FOLDING BOX BOARD MACHINE, SIX CYLINDERS. ALL FRINGE BENEFITS INCLUDED. FULL TIME EMPLOYMENT, EXCELLENT WORKING CONDITIONS, GOOD WAGES. APPLY TO MORRIS PAPER BOARD CO., 177 THIRD AVENUE, PATERSON, N. J.
M-21

SALES REPRESENTATIVE: Experienced in selling Resin Coated and Printed Paper. Knowledge of specialty bags helpful. Age 30 to 45. Progressive company—opportunity for advancement. Salary open—liberal management benefits. Send complete resume with recent snapshot to Box 53-423 care Paper Trade Journal.
TF

ARE YOU A CONVERTER—and would you like a permanent connection wtih a mill in the middlewest, established for several years, making the highest grades of coated and uncoated boxboard? If so, please write at once to Box 54-162 care Paper Trade Journal. M-21

WANTED — Experienced Finishing Supervisors for wax paper or tissue. Plant located in Pacific Northwest. Please address reply to Box 54-164 care Paper Trade Journal. M-21

Help Wanted and Situations Wanted Advertisements continued on page 46

FOR SALE

CAMERON SLITTERS

1—84" Type 10-A.
1—72" Type 10-11. Shear-cut.
1—72" Type 8-10.
1—62" Type 9-5.
1—62" Type 40-1-AF.
1—42", 1—52", 62" and 2—72" Type 10-5.
1—42" Type 6.
1—26" Type 10-10.

OTHER SLITTERS

1—102" Langston Mill Type Shear Cut. 46" Rewind.
1—90" Johnstone Mill Type Score Cut. 44" Maximum Rewind.
1—72" Langston Type BA Shear-cut. 60" Rewind.
1—40" and 1—60" Langston Type A Shear-cut and 1—40" and 1—50" Duplex.
1—56" Chambon, Shear-cut.
1—48" Kidder Model CH Shear-cut.
1—48" Inman Shear-cut, 48" dia. Rewind.
1—40" Kidder Model SL Shear-cut.
1—30" Meisel Shear-cut Series OP.
1—30" and 50" Model B Fales Slitter.

POWER PAPER CUTTERS

11—Seybolds, 1—50" Precision, 38", 44", 54" and 84" 20th Century, 56" and 64"
7—Oswegos, 32", 36", 38", 50", 68", 74", Daytons, 34", 44", 48" and 64" Holyokes. & 84".

PRINTING PRESSES

1—52" 3-color Wolverine Hydroprinter Flexographic. Roll to Roll.
1—42" 4-color Kidder Aniliner. 3—Flexo and 1—Roto Units. V-S. Drive.
1—40" 4-color Hudson-Sharp Flexographic press. With Variable Sheeter and A.C. Motor.
1—36" 5-color Special Unit Type Rotogravure.
1—36" 2-color Champlain Unit Type Rotogravure.
1—26" Champlain 5-color Rotogravure.
1—14" 3-Color Hy-Roto Rotogravure.
1—36" 2-Color Manhassett. Roll to Roll with Slitting Attachment.
1—30" 4-color Densatone Flexographic.
1—Business Form Equipment. Consisting of 12" x 18" New Era Press; 13" x 28" Carbon Processor and 12" x 17" 7-Part Collator.

MISCELLANEOUS MACHINES

1—Lake Erie Eng. Co. #18 Acraplate Vulcanizer.
1—36" Hot Melt Coating and Laminating Machine.
1—72" Mayer Type Waxing Machine.
1—60" Hudson Sharp Household Wax Roll Machine.
2—Die Presses, 1—#34-46" x 33" Sheridan Heavy Duty, 1—Seybold 38" x 24".
6—Embossers, 1—42", 3—60", 1—72" and 1—81".
1—Sheridan Continuous Feed Embosser. Model BD.
2—81" Dietz Toilet Paper Converters.
1—58" Paper Converting Machine Co's Single-Fold Towel Machine.
1—Hudson-Sharp 4-Wide Single Fold Towel Machine.
2—Potdevin Cellophane Bag Machines. Models 372 and 110.
1—Weber Model 2CN Satchel Bottom Cellophane Bag Machine.
1—Bagprint #18 Bag Machine.
4—Model 7-24 Simplex Foil and Paper Pouch Machines.
1—Amsco Bag Heat Sealer.
1—36" Beck Rotary Sheeter with electric eye. 45" and 55" without elec. eyes.
1—G.E. Electric Eye for Beck Sheeter.
1—66" & 1—72" Hamblet Single Rotary Sheeters with Backstands and Layboy.
1—30" & 1—72" plain.
3—Schultz Automatic Rewinders. 1—18", 1—24" and 1—48". 18" and 24" for Foil or Paper.
1—72" Black-Clawson Creping Machine with Reeves Drive.
2—Paper Drinking & 3—Paper Flated Cup Converting Machines. Foreign only.

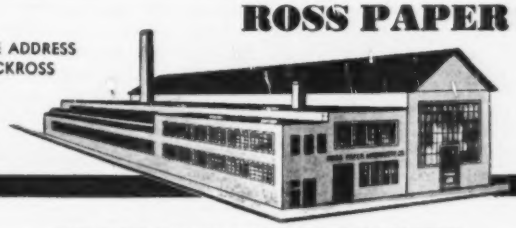
PAPER AND PULP MILL MACHINERY

3—Dietert Moisture Tellers. With 115 V. A.C. Motors.
1—#4, 1—#8 & 1—#9 Nash Hytor Vacuum Pumps.
1—750# and 1—1200# Iron Tub Beater.
2—Nekoosa Portable Pulp Wood Peelers, Gasoline Powered.
1—7-Roll 54" Holyoke Stack of Super Calenders with AC Motor Equipment.
2—Model 8' and 1—Model 9' Wandel Dynepulper.
1—132" Two-Drum Upright Reel.
1—Valley Iron Works Voith Kneader.
2—APMEW C. S. Screens.
5—Jordans, 3—Noble & Wood Mastodon, 1—Mamouth and 1—E. D. Jones Imperial.
4—36" Dilts-Cowles #4 Horizontal Classifiers.

GIBBS-BROWER CO., INC.
Please address reply to Room 902
21 E. 40th Street, New York 16, N. Y.
Telephone Murray Hill 5-7824 M-21

ROSS PAPER MACHINERY COMPANY

CABLE ADDRESS
JACKROSS



265 PASSAIC STREET • NEWARK 4, NEW JERSEY

BUY WITH CONFIDENCE — RPM SINCE 1919 — SELL WITH CONFIDENCE

USED PAPER MAKING & CONVERTING MACHINERY

Humboldt 2-2177

AGITATOR DRIVES
2—Cleveland enclosed—3 h.p. Ratio 24 to 1.
1—Foote Bros. enclosed—15 h.p. Ratio 33 to 1.

BALERS
1—Economy Baler—60 x 32 x 96, with motor.

BEATER
1—Dilts high speed iron tub. Roll 62" diameter x 54" face, with 75 h.p. motor and controls.

CALENDER ROLLS
46—Chilled Iron Rolls—Assorted sizes.

CALENDER STACKS
1—Black Clawson 90" 7 roll with 2 spare rolls.
1—Pusey & Jones 88"—7 roll Ryertex Bearings, 2 roll board.
1—Lobdell 96" 10 roll, with water cooled bearings, doctor and drive.
1—Black Clawson 82" 5 roll with doctors.
1—Black Clawson 82" 3 roll with doctors.

CLASSIFINERS
4—Dilts 36" Horizontal—Complete with 40 h.p. ball bearing motors.

CYLINDER MOLDS
1—102" face x 36" diameter, with 18" diameter rubber couches.

DAMPENER
1—Valley Micromist Unit for water finish on paper—120" deckle.

DRIVES
1—#3 Reeves anti-friction bearing.
1—Cleveland enclosed drive right angle, 7 h.p.
1—#6 Reeves vertical, ball bearing.
1—Lewellyn, 20 h.p., totally enclosed. Vertical class C-6-1. New.
1—U. S. Varied Drive Synchronous Gear Motor, 3 h.p., Ratio 2 to 1. Gear Ratio 1.82-1.
1—Reeves #3G, Horizontal. Enclosed drive.
2—Farrel Birmingham Herringbone Gear Reducers 10 h.p., 825-38.19 r.p.m.

DRYERS
2—160" face x 36" diameter.
1—130" face x 48" diameter.
16—127" face x 42" diameter.
1—126" face x 48" diameter.
1—124" face x 48" diameter.
1—116" face x 48" diameter.
1—116" face x 36" diameter, with gears and bearings.
1—116" face x 24" diameter Lead Dryer.
1—110" face x 42" diameter, with bearings.
1—104" face x 36" diameter.
1—103" face x 48" diameter.
1—102" face x 48" diameter, with bearings.
50—100" face x 48" diameter, complete with gears, 2 deck frames, bearings and steam joints.
10—88" face x 48" diameter, with frames, gears, bearings and felt roll.
3—88" face x 36" diameter, with frames, gears and bearings.
1—86" face x 36" diameter, with frames, gears and bearings.
60—74" face x 36" diameter, with gears and bearings.
26—46" face x 48" diameter, with gears, bearings and steam joints.
8—42" face x 36" diameter, with frames, gears and bearings.

DYNAPULPER
1—Rice Barton 9 ft. Dynapulper, with 54" diameter impellers. Requires 50 HP motor.

FILTERS
1—Oliver Vacuum Filter, 10' face x 5' 3" diameter. Steel vat.

FLAT SCREENS
3—8 plate Sandy Hill Roller Shoe.
2—Bagley & Sewall 8 plate.
2—16 plate Sandy Hill Roller Shoe with scrapers.

HYDRAULIC PRESS
1—Thropp 200 ton. Steam platens, 40" x 40" with pump.

JORDANS
2—E. D. Jones Pony, 3/16" stainless steel fillings—banded plugs, spare new fillings.
1—Smith & Winchester Standard with granite fillings.
1—#2 Miami anti friction bearing 150 h.p. synchronous motor with controls.
1—#6 Miami, for motor drive.

KAMYR WET END
1—Kamyr Continuous Feltless Wet End. Cylinder 59" diameter x 80" face. Steel vat—rubber couches—spare rolls and spare parts.

KNIFE GRINDERS
1—100" Hanchett Knife Grinder with motor.
1—130" Hanchett, complete with Coolant pump, 2 spare wheels and motor.
1—92" Seybold Knife Grinder.
1—Koegel Slitter Knife Grinder.

MOTORS
12—125 h.p. Westinghouse Synchronous enclosed. Brand new. 440 volt, 720 r.p.m. Forced air ventilation.

PARRY LINER
2—Parry 52" Liner, complete with motor.

PRESS SECTION
3—Complete Sections. Rolls 102" face x 16" and 18" diameter. Rubber and iron, with drives.

PULP EQUIPMENT
1—APMEW Ball Bearing Pulp Screens—30 ton capacity—outward flow.
1—Lannoye #2 Pulper, enclosed drive and 40 h.p. motor and starter.
1—Tyler Chip Screen #600, single deck.

PUMPS
44—Centrifugal Pumps, open & closed impellers. Direct connected or Belt Driven.

REELS
1—Pusey & Jones 162" drum reel, complete with unwind stand and water cooled brake.
1—Downingtown 104" 2 bowl Reel, complete with drive and adjusting devices.

ROLL GRINDER
1—Lobdell 18' Roll Grinder handles 25" maximum diameter rolls.
1—Farrell 24" x 161" motor driven Roll Grinder with crowning device.

ROLLS—PRESS, COUCH, etc.
32—Press rolls, brass and rubber covered.
14—Couch rolls, brass and rubber covered.
250—Brass and steel carrying rolls.

ROTARY DIGESTER
1—New Biggs 12½ ft. Rotary with drive—100# pressure.

ROTARY SCREENS
2—#1 Bird, with copper vats.
2—#2 Bird—Copper vat.
1—#2A Bird with copper vats.

SAVEALLS
1—Bird #5 with enclosed drive and 3 h.p. motor.
2—Bird #6A, complete, including motors. Anti friction bearings throughout.

SHEETERS
1—Moore & White Simplex 114" Sheeter with slitters—counter. Maxson layboy overlapping delivery. 8 roll backstand, motor and starter.
1—Clark 68" single knife, with layboy, 12 roll backstand & motor.
1—Cameron 124" quick change double slitter assembly for board sheeter. Complete with 16 pneumatic slitters.
1—Hamblet 100" single knife with 3 slitters. Very heavy duty.
1—Hamblet 92" duplex with Erie layboy, 12 roll backstand and motor.
1—Hamblet 81" duplex with Erie layboy, 12 roll backstand and motor.
1—Hamblet 85" Single Knife with 12 roll backstand and motor.

SLICE
1—Beloit 132" adjustable slice, complete, including stands. Slice is of all bronze construction. Operated 1000 feet per minute.

SLITTERS AND WINDERS
1—Johnstone 130", anti friction bearing equipped 50" rewind. 2500 ft. per minute.
2—Langston 112" anti friction bearings, complete with 20 h.p. motor and controls. 52" rewind. 1250 ft. per minute.
2—Cameron 62"—Model 6—24" rewind.
1—Cameron 72" Model 10-S. Ball bearing, constant tension back stand and water cooled brakes. 220 volt motor and controls.
1—Langston 40" shear cut with 3 h.p. moto. and controls.

STEAM TURBINE
1—Terry Steam Turbine 125 h.p.—160 h.p. 50 lb. back pressure, complete with enclosed drive and Link Belt Silent Chain Drive.

STOCK PUMPS
1—Shartle 10 x 20 Single Plunger Pump.
1—Beloit 8 x 10 Triplex.
1—Moore & White 10 x 16 Triplex.
1—Moore & White 8 x 8 Triplex.
4—Beloit open impeller Pumps, 5000 g.p.m. at 35' head. Anti friction bearings.

SUCTION COUCH ROLLS
1—Millspaugh 36" diameter x 234" drilled face with enclosed drive, water cooled bearings 12" suction boxes.
1—Millspaugh 156" drilled face x 22" diameter Suction Couch. Operated at 1000 ft per minute.
1—Sandusky Suction Couch, 25" diameter x 122" drilled face.
1—Sandusky 30" diameter x 210" drilled face, roller bearing equipped, complete with new pinion gear.
1—Sandusky Suction Couch 22" diameter x 122" drilled face.

SUCTION FELT ROLL
1—New Downingtown 186" drilled face x 16" diameter, with anti friction bearings and stands.

THICKENERS
1—IMPCO 5 ft. diameter Vacuum Thickener. 80" face with steel vat and spare couches. Used 3 years.
1—Hewitt 42" diameter x 88" face cylinder 16" diameter rubber couch—all anti friction bearings. Steel vat, 2 years old.

TOILET TISSUE PERFORATOR
1—Paper Converting Machine Co. Model 141, automatic 81" Perforator, ball bearing.

TRIMMERS
1—Seybold 74"—Model 12 ZG.
1—Seybold Dayton 74", with motor.
1—Seybold Dayton 64", with motor.
1—Seybold 64"—20th Century—Power back gauge.
1—Seybold 64" Model 10Z, with motor.
1—Seybold 48" Dayton—Power back gauge.
1—Seybold 38" Trimmer—power back gauge.

VACUUM PUMPS
1—Nash #6 Hytor.
1—Nash ½ H-5 Vacuum Pumps.
3—Nash H-4.
3—Nash L-3, with totally enclosed 5 h.p. motor.
1—Nash #2 Hytor, with totally enclosed 7½ h.p. motor.
1—Connersville 2.1 cu.ft. per rev. With base.
2—Connersville 1.65 cu.ft. per rev. With base
1—Connersville .75 cu.ft. per rev With base.
1—Connersville Type RSB. With base.

VOITH INLETS
2—Valley Iron Voith Inlets, adjustable 83" to 86"—brass lip, stainless steel apron.
1—Valley Iron Voith Inlet 156" with motor drive, brass construction. Operated at 1000 ft. per minute.

VORTRAPS
2—4" Stainless Steel with rubber lined heads.
1—New 8" with fittings.
1—1½" stainless steel, with valves.

WET MACHINES
1—Rogers 96" double press Wet Machine, 48" diameter cylinder—rubber couch, spare new top and bottom felts.

HELP WANTED

CHEMIST—To develop specialized coating for paper application. Must have previous experience in field and be familiar with all types of coating equipment. Salary commensurate with ability and experience. When replying, specify types of coatings worked on. Excellent opportunity. Address Box 54-172 care Paper Trade Journal. M-21

ASSISTANT SUPERINTENDENT preferred with degree in Paper and Pulp making and with ten years practical experience in Fine Paper Mill. Must be familiar with Converting operations and have experience in working with standards. Must be capable of handling labor. Excellent opportunities for advancement within short time to Superintendent and Plant Manager. Write Box 54-174 care Paper Trade Journal. M-21

EXPERIENCED MILL REPRESENTATIVE for fine grades of index. Advise experience, references, compensation wanted. Address Box 54-188 care Paper Trade Journal. M-21

VENEZUELA (South America) Paper Mill requires 3 machine tenders for Yankee Fourdrinier, $450. per month plus overtime. 48 hour week. Single men preferred. Travelling expenses paid. 2 year contract after 3 months trial period. Write giving full details to De Sola Bros., Inc., 111 Wall Street, New York, 5, N.Y. M-28

CYLINDER MACHINE MILL SUPERINTENDENT—Splendid opportunity will soon be open in an established lake states mill. Want a practical and experienced man about 40 years old. Mechanical background desirable but not essential. If your present situation is static or will be slow to develop, it will pay you to investigate. Write in full confidence. Address Box 54-192 care Paper Trade Journal. M-21

HELP WANTED

EXPERIENCED MILL REPRESENTATIVE for fine grades of Onionskin. Advise experience, references, compensation wanted. Address Box 54-189 care Paper Trade Journal. M-21

WANTED—TECHNICAL DIRECTOR—for modern mill manufacturing natural and bleached pulps and papers. Applicant must have had experience with Kraft pulping, bleaching and manufacture of white paper products, such as drinking cup, food carton, milk carton, etc. Excellent opportunity for man with necessary education and experience. All replies will be held in strictest confidence. Address Box 54-187 care Paper Trade Journal. J-11

SITUATIONS WANTED

PRODUCTION SUPERINTENDENT

Twenty-five years of practical experience on large rapid running eight-cylinder machines manufacturing high grade folding boxboard & frozen food cartons of all kinds from virgin pulp and old paper stock. Aggressive, capable man, references. Address box 54-152 care The Paper Trade Journal. J-4

PULP AND PAPER GRADUATE—Twelve years experience product and machine development, process design and management. Seeks change with progressive concern. Address Box 54-176 care Paper Trade Journal. M-28

EXECUTIVE MANAGER—Paper, Board and Conversion; seeks Change for opportunity. Highly qualified in all phases of management: administration; and production. Address Box 54-140 care Paper Trade Journal. M-28

SITUATIONS WANTED

DEVELOPMENT CHEMICAL ENGINEER

Eight years of practical experience in development and quality control of paperboard, folding cartons and corrugated containers. Seeks change with increased responsibility and greater opportunity. Age 36. Prefer midwest location. Address Box 54-191 care Paper Trade Journal. M-28

GENERAL MANAGER

of fully-integrated pulp and paper manufacturing company, now available as result of merger, seeks opportunity to demonstrate to small-to-medium-sized paper manufacturer methods used to achieve corporate earnings rate substantially above that of principal competitor and that of integrated industry nationally; available as consultant or on permanent basis. Address Box 54-167 care Paper Trade Journal. M-21

FELT SUPERINTENDENT—29 years experience in making Roofing Felt, Automotive Felt, Flooring Felt on Cylinder and Fourdrinier machine. Know the latest and less costly methods used. Will be glad to meet you and talk it over. Address Box 54-186 care Paper Trade Journal. J-4

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PAPER COATING MACHINERY MANUFACTURERS — Waxing, Oiling, Carbon Laboratory Coating and Treating and Flat Ream Measuring and Converting Machines. New Improvement. THE MAYER MACHINE COMPANY, INC., 1313 Buffalo Road, Rochester 11, N. Y. TF

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GRINDERS (Roll)
Farrel, takes roll 24" x 160".
Farrel, takes roll 36" x 161".
24" x 276" centers Landis.

GRINDERS (Slitter)
2—Koegel slitter grinders.

JORDANS
2—No. 1 Jones, new 1950, with base and coupling.
1—No. 2 Emerson Junior, base and coupling, new 1948.
1—No. 1 Emerson Junior, anti-friction, 5/16" steel filling.
2—Jones Majestic.
2—Shartle Miami No. 2.
3—Jones Imperial, 3/16" stainless steel filling.
4—Emerson Junior, No. 4, anti-friction bearings.
Noble & Wood Mammoth.
2—Noble & Wood Bulldog.
Union Machine, ¼" stainless steel filling.
Noble & Wood Mammoth Senior.
No. 2 Emerson, anti-friction.
No. 1 Emerson. No. 1 B Emerson.
No. 1 Claflin with coupling and base.
Shartle No. 1 Hydrafiner with motor.
Four Cowles Claffiners.
3—Mastodon Jordans.

KETTLES
Glass lined, steam jacketed, 150 gallons.
Glass lined, 300 gallons.
82 x 22, Glass lined, jacketed.
2 Size tanks, 300 gallons, partially jacketed.
Autoclav, used one week, 10 lb. pressure.
24 x 24 steam jacketed, fifty gallons.
Steel tank, 10 ft. dia. x 10' 6".

KNIFE GRINDERS
102" Seybold, three new stones.
100" Hanchett. 40" Springfield.
64" Seybold. 66" Berlin.
30" Bridgeport.

KNOTTERS
2—Impco, print available.
3—Trimbley.

LAMINATING MACHINES
62" Beloit.
54" Laminator and Combiner.
62" Beloit.
104" Beloit, layboy and roll stands.
84" Moore & White, rebuilt.
56" Moore & White. 80" Moore & White.
94" 8-roll Moore & White, backstand, double deck, 36" roll.

MACHINE TOOLS
20" Simonds shaper.
36" Drill press.
32" Drill press.
Cincinnati No. 2 horizontal milling machine.
Pond engine lathe, 36".
Putnam lathe, 10' 6" center to center, swing 32, turns 22" from 36" bed, swings over bed 14".
Sellers planer 10' 6" x 28".

M. G. SETS
Allis Chalmers, 500 K W and controls.
Westinghouse, 100 K W.
Westinghouse 95.

MOTORS
2—G. E., 125 HP vertical squirrel cage, 550 V, 65 speed full load.
1—500 HP Westinghouse, 2300 V, 200 rpm, synchronous.
2—50 HP, 440 V. 4—100 HP, G. E., 50 V.

PULPERS
Kurt Wandell Dynapulper.
2—No. 2 Lannoye pulpers.

PUMPS (Centrifugal)
Gardner Denver, size 2½, Type EE, 350 gpm, 60 ft. head.
2300 gpm Gould, 14 ft. head with 30 HP, 440 V motor.
150 gpm Gould, 150 ft. head with 15 HP, 3600 rpm motor.
2—Frederick, 200 gallons, 80 ft. head, 25 HP, 1150 rpm, 440 V motor.
2—7500 gpm, 5 percent stock, 30 ft. head.
500 gallons, 120 ft. head, Warren.
4" x 5" Aurora, 400 gpm, 50 ft head.
500 gallon, 120 ft. head, Warren.
Jennings, 300 gallons, 35 ft. head.

PUMPS (Plunger)
7 x 16 Shartle duplex.
2—9 x 16 Downingtown, new 1951.
12 x 12 Gould triplex.
12 x 12 Bagley & Sewall triplex.
10 x 20 Black & Clawson triplex, 4 years old.
2—7 x 9 Gould.

PUMPS (Vacuum)
Nash A. L., 1 HP, 220-440 V motor.
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No. 4 Nash.

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Taylor Stiles Giant, size 2 B.
Perkins rag cutters Series C, No. 39.

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Two bowl Rice Barton, 96".
62" Pusey & Jones drums, 42 x 162".
90" Pusey & Jones drums, 42 x 190".

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32" Sutherland.
No. 1 Claflin with coupling and base.
4 Cowis Classifiners.
Weiner refiner.
No. 2 Haug refiner with No. 2 drainer.
No. 1 Shartle Hydrafiner, 150 HP, 440 V motor.
Shartle refiner No. 4.
Jeffrey Hammermill, size 24 with 40 HP motor.
3 Haug drainers, size 3. Morden stock maker.

SCREENS
2—Ten plate Impco, bronze vats.
1—Twelve plate Impco bronze vat.
1—Twelve plate Impco bronze vat.
1—Ten plate Sandy Hill roller shoe, new.
1—Ten plate Sandy Hill roller shoe, plates cut .012".
2—Fourteen plate Harmon.
2—Sixteen plate Packer.

SCREENS (Rotary)
4—Bird 2 A copper vats. 1—Jones Leith Walk.
1—Bird 3 A. 1—Trimbley Senior.

SCREENS (Pulp)
2—No. 4 Impco centrifugal.
2—No. 4 Impco centrifugal.
2—Trimbley.

SLICES
93" Voith. 153" Voith.153"
143" Rice Barton. 160" Beloit.
143" Voith, new. 206" Voith.

SLITTERS AND WINDERS
42" Cameron, type 6.
62" Cameron, type 95.
62" Meisel.
82" Cameron, type 10, model A.
82" Langston. 100" Type 18 Cameron.
106" Type 18 Cameron.
104" Moore & White four drum with slitter part, 7½ HP motor.
107" Moore & White, four drum, anti-friction.
146" Langston, Type D. A., anti-friction.
150" Rice Barton, two-drum, 15" dia. drums.
160" Black & Clawson, two-drum.
186" No. 19 Cameron.

ROLLS (Suction)
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14" x 100" Millspaugh suction couch.
18" x 100" Walmesley suction couch.
3—22" x 129" Downingtown suction extractor.
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18" x 104" Sandusky suction press.
25" x 152" Sandusky suction press.
30" x 158" Sandusky suction couch.
30" x 161" Downingtown suction couch.
30" x 170" Sandusky press.

TRIMMERS
38" Smith & Winchester.
44" Smith & Winchester, power operated back gauge.
44" Oswego. 54" Seybold, New 1940.
48" Seybold. 84" Smith & Winchester.
54" Seybold 84" Seybold.

WET MACHINES
72" Rogers anti-friction. 72" Rogers.
72" Rice Barton 84" Bagley & Sewall.

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FOR SALE—72" Cameron Slitter & Rewinder; Potdevin F & S Bag Machine range as model 101 with or without Potdevin 2 Color Aniline Printer (Rebuilt); Thomson Platen Die Cutter 26 x 38; 32" Rutherford Roller Coater; Seybold 4 Pos* Die Cutters 44 x 30 x 38 x 24; Standard and Universal Brightwoods; N. J. Pony Lebelrites. Also many Set-up, Folding and Corrugated Box Machines. Address Box 54-184 care Paper Trade Journal. TF.

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110" Hamblet Sheeter.
60" Finlay Sheeter.
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FOR SALE—80" Creper an Waxer complete with Steam Plant A-1 new equipment. Address Box 53-293 care Paper Trade Journal. TF

FOR SALE—1—62" Cameron Slitter Type 6 with 10 slitter level holders. 1—Unwind Shaft with chucks for 3" core. 1—locked type rewind shaft for 3" core. PHONE WOrth 6-3430. M-21

WANTED

WANTED—Variable Speed Motor, about 50 H. P., for Paper Machine Drive, with controls. Top machine speed about 250 feet per minute. Also, M. G. set for same. Address Box 54-168 care Paper Trade Journal. M-28

WANTED—15 to 20 Dryers 76" to 80" face, 36" to 48" diameter with frames, gears and bearings. Could use dryer felt rolls and drives for dryers. Address Box 54-169 care Paper Trade Journal. M-28

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YANKEE DRYERS

Please state size, age, general condition, location and price. Address Box 54-181 care Paper Trade Journal. J-4

WANTED—Nash Vacuum Pumps #3, #4 and L-6. Address Box 54-170 care Paper Trade Journal. M-28

WANTED—6 Marshall or enclosed drives for overhead lineshafts; can use various sizes. Address Box 54-171 care Paper Trade Journal. M-28

WANTED—Type 26 or 28 Cameron Duplex 72 inches wide in running condition. UNITED STATES RUBBER CO., STOUGHTON, WISC. M-21

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WANTED—Cameron Duplex 42" to 72" wide. Address Box 54-180 care Paper Trade Journal. J-4.

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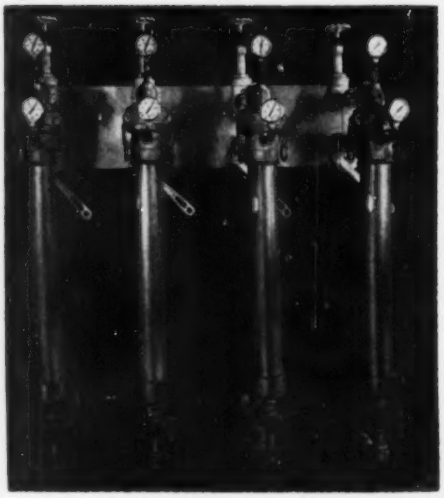

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The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Walworth Company

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Bird Machine Co.
Nichols Engrg. & Research Corp.
Ross, J. O., Engrg. Co.
Shartle Brothers Machine Co.

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Link Belt Co.

CHEMICAL COTTON PULP
Hercules Powder Co.

CHEMICAL SPRAYS
Vapo Systems Co.

CHEMICALS
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Antara Chemicals Division, General Dyestuff Corp.
Arnold, Hoffman & Co., Inc.
Calgon, Inc.
Columbia-Southern Chem. Corp., Sub. of Pittsburgh Plate Glass Co.
Diamond Alkali Co.
Dow Chemical Company
E. I. du Pont de Nemours & Co., Inc.
Geigy Co., Inc.
B. F. Goodrich Chemical Co.
Gottesman & Co.
Hercules Powder Co.
Heyden Chemical Corp.
Hooker Electrochemical Co.
Koppers Company, Inc.
Monsanto Chemical Company
National Aluminate Corp.
Naugatuck Chemical Division of U. S. Rubber Co.
Nopco Chemical Co.
Pennsylvania Indust. Chem. Corp.
Rohm & Haas Company
Wyandotte Chemicals Corp., Michigan Alkali Div.

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Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Midwest Fulton Mch. Co.
Shartle Bros. Mch. Co.

CLARIFIERS
Graver Tank & Mfg. Co.

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Antara Chemicals Division, General Dyestuffs Corp.
Arnold, Hoffman & Co., Inc.
Columbia-Southern Chem. Corp., Sub. of Pittsburgh Plate Glass Co.
Diamond Alkali Co.
The Dow Chemical Company
E. I. du Pont de Nemours & Co., Inc.
Monsanto Chemical Company
Nopco Chemical Co.
Wyandotte Chemicals Corp., J. B. Ford Division

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Beloit Iron Works
Black Clawson Company
Dodge Mfg. Corp.
Downingtown Mfg. Co.
Farrel-Birmingham Co.
Horton Mfg. Co., Inc.
Hudson-Sharp Mch. Co.
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D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Works
Shartle Bros. Mch. Co.

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Bird Machine Company

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Gibbs-Brower Company, Inc.
Hudson Sharp Machine Co.
The Mayer Machine Co., Inc.
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Potdevin Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corporation, John
Weber, Herman G., & Co., Inc.

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The Goodyear Tire & Rubber Company
Hercules Powder Co.
J. M. Huber Corp.
Koppers Company, Inc.
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Naugatuck Chemical Division of U. S. Rubber Co.
Nopco Chemical Co.
Thiele Kaolin Co.
Wyandotte Chemicals Corp., Michigan Alkali Div.

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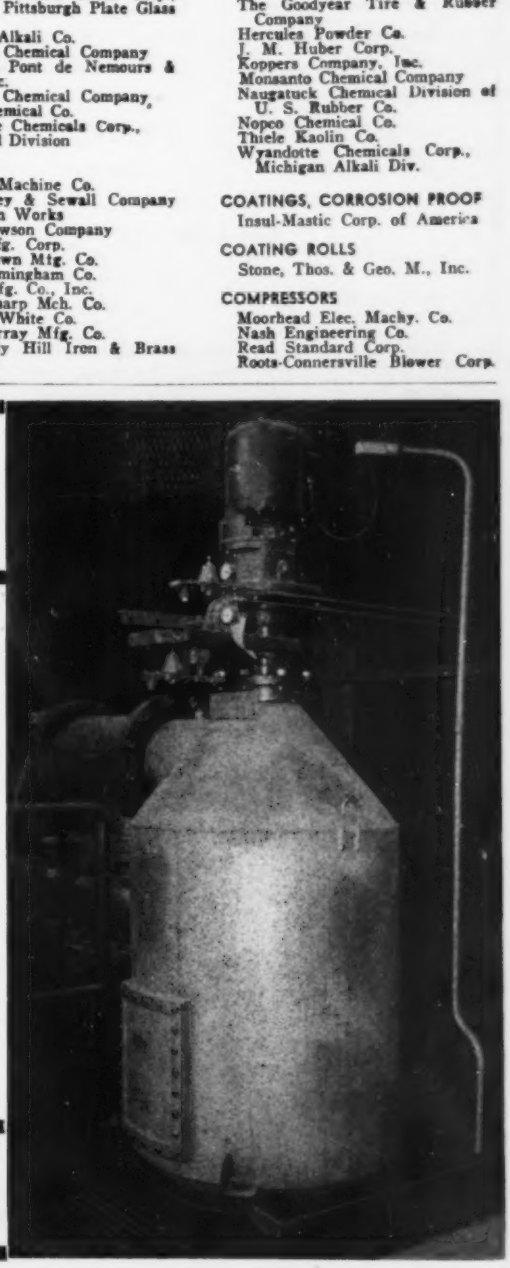

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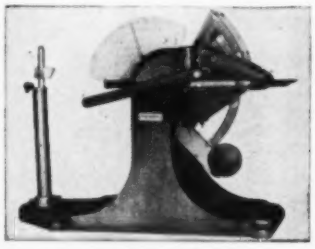

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Potdevin Machine Co.
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Ross Engineering Corp., J. O.
Shartle Brothers Machine Co.

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Elliott Company, Inc.

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DECKLE STRAPS
Stowe-Woodward Inc.

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Houghton & Co.

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Dilts Machine Works
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

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Jackson & Church Co.
Nopco Chemical Co.

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Diamond Alkali Co.
Monsanto Chemical Company
Nopco Chemical Co.
Rohm & Haas Company
Wyandotte Chemicals Corp., Michigan Alkali Div.

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Antara Chemicals Division, General Dyestuffs Corp.
Arnold, Hoffman & Co., Inc.
Nopco Chemical Co.

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A. O. Smith Corp.

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Monsanto Chemical Company
National Aluminate Corp.
Nopco Chemical Co.
Rohm & Haas Company
Wyandotte Chemicals Corp.
Michigan Alkali Div.

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The Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

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Bird Machine Company
Black Clawson Company
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The Moore & White Co.
The Sandy Hill Iron & Brass Works
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Simonds Saw & Steel Co.
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Ross Paper Machy. Co.
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Shartle Brothers Machine Co.
Valley Iron Works Co.

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Manchester Machine Co.

DRILLED SUCTION DRUM ROLLS
Downingtown Mfg. Co.
Manchester Machine Co.

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Downingtown Mfg. Co.
Farrel-Birmingham Co.
Horton Mfg. Co.
Jeffrey Mfg. Co.
General Electric Company
Gibbs-Brower Company, Inc.
Link Belt Co.
Manchester Machine Co.
Moore & White Co.
Murray, D. J., Mfg. Co.
Pusey & Jones Corp.
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

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Holyoke Machine Co.
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Nopco Chemical Co.
Rohm & Haas Company
Wyandotte Chemicals Corp.

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Rohm & Haas Company
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Calgon, Inc.
Nopco Chemical Co.

FELT CONDITIONERS
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Downingtown Mfg. Co.
Mount Hope Machinery Co.
The Sandy Hill Iron & Brass Works

FELT EXPANDERS
Mount Hope Machinery Co.

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Gilbert & Nash Co.
Moore & White Co.
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Mount Hope Machinery Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corp., John

FELT PRESERVERS
Mount Hope Machinery Co.

FELT SHOWERS
Ronningen-Petter Co.

FIBRE BOARD MACHINES
Black Clawson Company
Sandy Hill Iron & Brass Works

FIBRE GLASS
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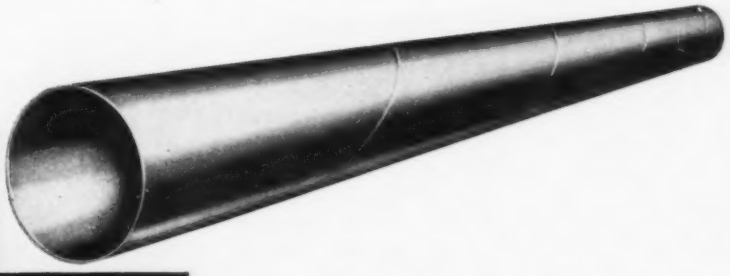

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Walworth Company

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Waldron, John, Corp.

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Nopco Chemical Co.
Wyandotte Chemicals Corp., Michigan Alkali Div.

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B. F. Goodrich Chemical Co.

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INDUSTRIAL TIRES
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JORDANS
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Shartle Brothers Machine Co.

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Shartle Brothers Machine Co.
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The Moore & White Co.
Shartle Brothers Machine Co.
Simonds Saw & Steel Co.
Taylor Stiles & Co.
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LABORATORY EQUIPMENT
Appleton Machine Co.
Bauer Brothers Co.
Bird Machine Company
Cady & Co., E. J.
Dilts Machine Works
Downingtown Mfg. Co.
W. & L. E. Gurley
Egan, Frank W., & Co.
Hermann Mfg. Co.
Jackson & Church Co.
E. D. Jones & Sons Co.
Ronningen-Petter Co.
Shartle Brothers Machine Co.
Taylor Instrument Companies
Testing Machines, Inc.
Thwing-Albert Instrument Co.
Valley Iron Works Co.
Waldron, John, Corp.
Williams Apparatus Co.

LAMINATING MACHINES
The Bagley & Sewall Company
Dilts Machine Works
Egan, Frank W., & Co.
Hudson Sharp Machine Co.
Paper Converting Machine Co.
Potdevin Machine Co.
Waldron John, Corp.

LAY BOYS
Dilts Machine Works
Gibbs-Brower Company, Inc.
Hamblet Machine Co.
Moore & White Co.

LINTER PULP
Hercules Powder Co., Inc.

LUBRICANTS
Cities Service Oil Co.
Gulf Oil Corp.
Houghton & Co.
Sinclair Refining Co.
Socony-Vacuum Oil Co.
The Texas Company

MACHINERY, CARBON PAPER
Haida Engineering Co.

MAGAZINE REELS
Dilts Machine Works

MAGNETIC SEPARATORS
Bauer Bros. Co.
Emerson Mfg. Co.
Shartle Brothers Machine Co.

MATERIALS HANDLING
Dilts Machine Works
Downingtown Mfg. Co.
Jeffery Mfg. Co.
Link Belt Co.
Shartle Bros. Mch. Co.
Towmotor Corp.
The Wellman Engrg. Co.

MICROMETERS & CALIPERS
Cady & Co., E. J.
Farrel-Birmingham Co.
Lobdell Co.
Testing Machines, Inc.

MIXERS
Jackson & Church Co.
Mixing Equipment Co.
Walker Process Equipment, Inc.

MICRO-CRYSTALLINE WAXES
Sun Oil Company

MOISTURE CONTENT CONTROL
Testing Machines, Inc.
Vapo Systems Co.
Williams Apparatus Co.

MOISTURE METERS
Testing Machines, Inc.

MOTORS
Allis Chalmers Mfg. Co.
Elliott Company
Moorhead Elec. Machy. Co.

MOTORS AND GENERATORS
Elliott Company, Inc.
General Electric Company
Moorhead Elec. Machy. Co.
Reliance Electric & Engrg. Co.
Westinghouse Electric Corp.

NICKEL AND NICKEL ALLOYS
The International Nickel Co.

PACKING BOXES
Johnson Corporation
The Moore & White Co.
Shartle Brothers Machine Co.

PAPER CONDITIONERS
Vapo Systems Co.

PAPER MACHINE DRIVES
The Bagley & Sewall Company
Beloit Iron Works
Black-Clawson Co.
Dowington Mfg. Co.
Manchester Machine Co.
Moore & White Co.
Sandy Hill Iron & Brass Works
Westinghouse Electric Corp.

PAPER MACHINES
The Bagley & Sewall Company
Beloit Iron Works
Black-Clawson Company
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Lukenweld
Manchester Machine Co.
Moore & White Co.
Pusey & Jones Corp.
J. J. Ross Company
Ross Paper Machinery Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.

PAPER MACHINE SLICES
Black-Clawson Company
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
The Moore & White Co.
The Sandy Hill Iron & Brass Works
Valley Iron Works Co.

PAPER MILL MACHINERY
Ronningen-Petter Co.

PAPER TUBE MACHINERY
Dietz Machine Works
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Hudson Sharp Machine Co.
Langston Co., Samuel M.
Paper Converting Machine Co.

PARAFFINE WAXES
Sun Oil Company

PARAFFIN WAX EMULSIONS
American Cyanamid Co., Ind. Chem. Div.
Arnold, Hoffman & Co., Inc.
Hercules Powder Co., Inc.
Nopco Chemical Co.

PASTING MACHINES
Beloit Iron Works
Black-Clawson Company
Dilts Machine Works
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Murray, D. J., Mfg. Co.
Moore & White Co.
Potdevin Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corp., John

PEBBLE MILLS
F. L. Smidth & Co.

pH METERS
Testing Machines, Inc.
Thwing-Albert Instrument Co.

PHOTO GRAVURE ROLLS
Stone, Thos. & Geo. M., Inc.

PIPE
Aluminum Co. of America
Armco Drainage & Metal Products, Inc.
Babcox & Wilcox Co.
Crane Company
Grinnell Company
National Tube Co.
Walworth Company

PIPE FABRICATORS
Pittsburgh Piping & Equipt. Co.
Ronningen-Petter Co.

PIPE FITTINGS
Aluminum Co. of America
Armco Drainage & Metal Products, Inc.
Crane Company
Grinnell Company
Pittsburgh Piping & Equipt. Co.
Walworth Co.

PIPING, HIGH PRESSURE
Pittsburgh Piping & Equipt. Co.

PIPING (Piloweld Lines)
Goodyear Tire & Rubber Co.

PITCH CONTROL
American Cyanamid Company, Industrial Chemicals Division
Antara Chemicals Division, General Dyestuff Corp.
Monsanto Chemical Company
National Aluminate Corp.
Nopco Chemical Co.
Rohm & Haas Company

PLASTICIZERS
American Cyanamid Company Industrial Chemicals Company
Aktivin Division, Heyden Chemical Corp.
Arnold, Hoffman & Co., Inc.
B. F. Goodrich Chemical Co.
Jackson & Church Co.
Naugatuck Chemical Division of U. S. Rubber Co.
Nopco Chemical Co.
Rohm & Haas Company

PLATERS
Gibbs-Brower Company, Inc.
Perkins & Son, Inc., B. F

PLATES
Armco Steel Corp.
Babcock & Wilcox Co.
Emerson Mfg. Co.
Lukenweld Division
Lukens Steel Company
L. O. Ross Engrg. Corp.
Timken Roller Bearing Co.

PLUGS
The Appleton Machine Co.
Black Clawson Company
Emerson Mfg. Co.
E. D. Jones & Sons Co.
Shartle Brothers Machine Co.

POPE TYPE REELS
Black-Clawson Company
Downingtown Mfg. Co.
Egan, Frank W., & Co.
Manchester Machine Co.
Moore & White Co.
Sandy Hill Iron & Brass Works

PRESERVATIVES
Antara Chemicals Division, General Dyestuff Corp.
E. I. du Pont de Nemours & Co.

PRESS ROLLS
Beloit Iron Works
Black-Clawson Co.
Downingtown Mfg. Co.
Goodrich, B. F., Company, Inc.
Manchester Machine Co.
Moore & White Co.
Sandy Hill Iron & Brass Works
Stowe-Woodward Inc.

PRESSURE FILTERS
Holyoke Machine Co.
Hungerford & Terry, Inc.
Jackson & Church Co.
Ronningen-Petter Co.
Sandy Hill Iron & Brass Works

PRESSURE VESSELS
Chicago Bridge & Iron Co.
Mahon, R. C., Co.
A. O. Smith Corp.

PRESSES
Beloit Iron Works
Black-Clawson Company
Downingtown Mfg. Co.
Dietz Machine Works
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc.
Heinrich, H. H., Co.
Hudson-Sharp Machine Co.
Jackson & Church Co.
Manchester Machine Co.
The Moore & White Co.
Paper Converting Machine Co.
Potdevin Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Testing Machines, Inc.
Valley Iron Works Co.
Waldron Corp., John
H. G. Weber & Co., Inc.
Williams Apparatus Co.

PRINTING ROLLS
Stone, Thos. & Geo. M., Inc.

PROTECTIVE COATINGS
Insul-Mastic Corp. of America

PULLEYS
Bird Machine Company
Black-Clawson Co.
Dodge Mfg. Corp.
Horton Mfg. Co., Inc.
Sandy Hill Iron & Brass Works

PULP CLASSIFIER
The Bauer Bros. Co.
Testing Machines, Inc.
Thwing-Albert Instrument Co.

PULP CLEANERS
Bauer Bros. Co.
Bird Machine Co.
Nichols Engrg. & Research Corp.
Sandy Hill Iron & Brass Works
Shartle Bros. Machine Co.

PULP REFINERS
Emerson Mfg. Co.
Shartle Bros. Machine Co.

PULP SCREENS
Bird Machine Co.
Murray, D. J., Mfg. Co.
Sandy Hill Iron & Brass Works
Shartle Bros. Machine Co.

PULP STOCK VALVES
Crane Company
Grinnell Company
Murray, D. J., Mfg. Co.
Record Fdy. & Mach. Co.
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

PULP WASHERS
Mundt, Chas. & Sons
Sandy Hill Iron & Brass Works
Shartle Bros. Machine Co.

PULPERS
Apmew, Inc.
Bauer Brothers Co.
Cowles Company
Curlator Corp.
Dilts Machine Works
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Midwest Fulton Mch. Co.
Morden Machines Co.
Shartle Brothers Machine Co.

PULPS
Brown Company
Gottesman & Co., Inc.
Lyddon & Co. (America), Inc.
Parsons & Whittemore, Inc.
Perkins-Goodwin Co.
Price & Pierce, Ltd.
Pulp and Paper Trading Co.
Restigouche Co., Ltd.

PULPSTONES
Norton Company

PULP TESTERS
Testing Machines, Inc.

PULP TREATING
Curlator Corp.

PULVERIZING MILLS
Jeffery Mfg. Co.
F. L. Smidth & Co.

PUMP VALVE BALLS
Stowe-Woodward Inc.

PUMPS
Allis Chalmers Mfg. Co.
Apmew, Inc.
The Bagley & Sewall Company
Beloit Iron Works
Black Clawson Company
Buffalo Pumps, Inc.
DeLaval Steam Turbine Co.
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Johnson Corp.
Moore & White Co.
Nash Engineering Co.
Read Standard Corp.
Ronningen-Petter Co.
Roots Connersville Blower Corp.
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.

RADIANT BURNERS
Red-Ray Mfg. Co., Inc.

RAG COOKING PROCESSES
General Dyestuff Corp.
Rohm & Haas Company

RAG CUTTERS
Gibbs-Brower Company, Inc.
B. F. Perkins & Son, Inc.
Taylor-Stiles & Co.

RECOVERY SYSTEMS
Babcock & Wilson Co.
Chicago Bridge & Iron Co.
Moore & White Co.
D. J. Murray Mfg. Co.
Peabody Engrg. Corp.
Pusey & Jones Corp
Ross Engineering Corp., J. O.
Valley Iron Works Co.
Vulcan Copper & Supply Co.

REELS
The Appleton Machine Co.
The Bagley & Sewall Company
Beloit Iron Works
Black Clawson Company
Dilts Machine Works (Kohler Systems)
Egan, Frank W., & Co.
Downingtown Mfg. Co.
Hudson-Sharp Mch. Co.
Manchester Machine Co.
Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
The Smith & Winchester Mfg. Co.
Waldron, John, Corp.

REFINERS
Appleton Machine Co.
Bahr Brothers Mfg. Co.
Bauer Brothers Co.
Curlator Corp.
Dilts Machine Works
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Hermann Mfg. Co.
Jackson & Church Co.
E. D. Jones & Sons Co.
Morden Machines Co.
Murray, D. J., Mfg. Co.
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Sutherland Refiner Corp.
Valley Iron Works

REFRACTORIES
Harbison-Walker Refractories Co.

REGULATORS
Airmatic Valve, Inc.
Apmew, Inc.
Bird Machine Company
General Electric Co.
Improved Machinery Inc.
Johnson Corp.
Poirier Control Company
Shartle Brothers Machine Co.
Taylor Instrument Companies
Westingkouse Electric Corp.

RESINS
American Cyanamid Company, Plastics & Resins Division
Borden Company
The Dow Chemical Company
B. F. Goodrich Chemical Co.
The Goodyear Tire & Rubber Company
Hercules Powder Co.
Koppers Company, Inc.
Monsanto Chemical Company
Naugatuck Chemical Division of U. S. Rubber Co.
Nopco Chemical Co.
Pennsylvania Indust. Chem. Corp.
Rohm & Haas Company

ROLLS
Appleton Machine Co.
The Bagley & Sewall Company
Beloit Iron Works
Black Clawson Company
Dilts Machine Works
Downingtown Mfg. Co.
Frank W. Egan & Co.
Emerson Mfg. Co.
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc.
B. F. Goodrich Co.
Holyoke Machine Co.
Lindsay Wire Weaving Co.
Lobdell United Co.
Manchester Machine Co.
The Moore & White Co.
D. J. Murray Mfg. Co.
Perkins, B. F., & Sons Co.
Pusey & Jones Corp.
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Stone, Thos. & Geo. M., Inc.
Stowe-Woodward Inc.
Tyer Rubber Co.
U. S. Rubber Co.
Valley Iron Works Co.
Waldron Corp., John

ROLL COVERS
B. F. Goodrich Co.
The Goodyear Tire & Rubber Company
Stowe-Woodward Inc.
Tyer Rubber Co.
U. S. Rubber Co.

ROLL HANDLING EQUIPMENT
Dilts Machine Works

ROLL STANDS
Cameron Machine Co.
Dilts Machine Works
Frank W. Egan & Co.
Moore & White Co.
The Sandy Hill Iron & Brass Works
John Waldron Corp.
H. G. Weber & Co., Inc.

ROPE CARRIERS
Black Clawson Co.
Downingtown Mfg. Co.
The Moore & White Co.
The Sandy Hill Iron & Brass Works

ROTARY KILNS
F. L. Smidth & Co.

ROTARY SCREENS
Bird Machine Company

ROTARY STEAM JOINTS
Johnson Corp.
The Moore & White Co.
Sandy Hill Iron & Brass Works
Shartle Bros. Mch. Co.

RUBBER COVERED ROLLS
Stowe-Woodward Inc.
Tyer Rubber Co.

RUBBER PRODUCTS
B. F. Goodrich Co.
The Goodyear Tire & Rubber Company
Stowe-Woodward Inc.
Tyer Rubber Co.

SAMPLE CUTTER
Testing Machines, Inc.
Thwing-Albert Instrument Co.

SATURANTS
B. F. Goodrich Chemical Co.

SATURATING MACHINES
Dilts Machine Works
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Moore & White Co.
Potdevin Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corp., John
Weber, Herman G.

SAVEALLS
Bird Machine Company
Bulkley, Dunton Processes, Inc.
Chicago Bridge & Iron Co.
Improved Paper Machinery Corp.
Moore & White Co.
Ronningen-Petter Co.
Shartle Bros. Machine Co.
Walker Process Equipment, Inc.

SAWS
Simonds Saw & Steel Co.
Moore & White Co.

SCALES
Cady & Co., E. J.
Merrick Scale Mfg. Co.
Testing Machines, Inc.

SCREEN PLATES
Bird Machine Company
Fitchburg Screen Plate Co.
Magnus Metal Corp.
Morey Paper Mill Supply Co.
Testing Machines, Inc.

SCREENS
Appleton Wire Works
Appleton Machine Company
The Bagley & Sewall Company
Bird Machine Company
Carthage Machine Co.
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
E. D. Jones & Sons Co.
Moore & White Co.
Murray, D. J., Mfg. Co.
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

SCREENS, CHIP (Vibrating)
Link Belt Co.

SCREENS (Rotary)
Bird Machine Company

SHAKES
Black Clawson Company
Downingtown Mfg. Co.

SHAKE STICKS
Westinghouse Electric Corp.

SHEET MACHINES
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Hermann Mfg. Co.
Hudson Sharp Machine Co.
Ronningen-Petter Co.
Testing Machines, Inc.
Valley Iron Works Co.
Williams Apparatus Co.

SHOWER PIPES
Bird Machine Company
Black-Clawson Company
Downingtown Mfg. Co.
Emerson Mfg. Co.
Moore & White Co.
Ronningen-Petter Co.
Sandy Hill Iron & Brass Works
Sandusky Fdy. & Mch. Co.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.

SHREDDERS
Bauer Brothers Co.
Carthage Machine Co.
Gibbs-Brower Company, Inc.
Jackson & Church Co.
Jeffrey Mfg. Co.
Taylor, Stiles & Co.

SIZE PRESSES
Black-Clawson Co.
Downingtown Mfg. Co.
Manchester Machine Co.
Moore & White Co.
Sandy Hill Iron & Brass Works

SIZING
American Bitumuls & Asphalt Co.
American Cyanamid Company, Industrial Chemicals Division
The Dow Chemical Company
du Pont, E. I., de Nemours & Co.
Glidden Company
Hercules Powder Co.
The Hubinger Co.
Monsanto Chemical Company
National Aluminate Corp.
Nopco Chemical Co.
Wyandotte Chemicals Corp., Michigan Alkali Div.

SIZING TESTER
W. & L. E. Gurley
Testing Machines, Inc.
Thwing-Albert Instrument Co.
Williams Apparatus Co.

SLIME CONTROL
Antara Chemicals Division, General Dyestuff Corp.
The Dow Chemical Company
E. I. du Pont de Nemours & Co.
Monsanto Chemical Co.
National Aluminate Corp.
Rohm & Haas Company
Vanderbilt Co., R. T.
Wyandotte Chemicals Corp., Michigan Alkali Div.

SLITTERS
The Bagley & Sewall Company
Black-Clawson Company
Cameron Machine Co.
Carthage Machine Co.
Dietz Machine Works
Dilts Machine Works
Downingtown Mfg. Co.
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co., Inc.
Hamblet Machine Co.
Hudson-Sharp Mch. Co.
Improved Machinery Inc.
Langston Co., Samuel M.
Moore & White Co.
D. J. Murray Mfg. Co.
Paper Converting Machine Co.
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Waldron Corp., John

SMOKE STACKS
Chicago Bridge & Iron Co.

SOFTNESS-STIFFNESS TESTER
W. & L. E. Gurley
Testing Machines, Inc.
Thwing-Albert Instrument Co.

SOLUBLE OILS
American Cyanamid Company, Industrial Chemicals Division
Antara Chemicals Division, General Dyestuff Corp.
Arnold, Hoffman & Co., Inc.
Nopco Chemical Co.

SOLVENTS
Pennsylvania Ind. Chem. Co.

SPECIAL MACHINERY
Black Clawson Company
Dilts Machine Works
Downingtown Mfg. Co.
Egan, Frank W., & Co.
Jackson & Church Co.
Mahon, R. C., Co.
Manchester Machine Co.
Moore & White Co.
Murray, D. J., Mfg. Co.
Paper Converting Machine Co.
Potdevin Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Bros. Machine Co.
Waldron, John, Corp.

SPEED REDUCERS
Dodge Manufacturing Corp.
Downingtown Mfg. Co.
Link Belt Co.
Westinghouse Elec. Corp.

SPLICING TISSUE
Williams-Gray Co.

STAINLESS AND ALLOY CASTINGS
Michigan Steel Casting Co.

STAINLESS STEEL
Armco Steel Corp.
Crucible Steel Co.
U. S. Steel Corp.

STARCH
Clinton Foods, Inc.
Corn Products Sales Co.
The Hubinger Co.
National Starch Products, Inc.

STEAM JET EJECTORS
Elliott Company, Inc.

STEAM JOINTS
The Moore & White Co.
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

STEAM SPECIALTIES
Babcock & Wilcox Co.
Johnson Corp.

STEEL
Armco Steel Corp.
Carnegie Illinois Steel Co.
Crucible Steel Co.
Lukens Steel Company
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Works
U. S. Steel Corp.

STEEL, CLAD
Babcock & Wilcox Co.
Lukens Steel Company

STEEL TANKS
Chicago Bridge & Iron Co.
Jackson & Church Co.
Mahon, R. C., Co.
Ronningen-Petter Co.
The Sandy Hill Iron & Brass Works
Shartle Bros. Machine Co.

STEEL-WELD FABRICATED PARTS
Mahon Company

STOKERS
Westinghouse Elec. Corp.

STRAINER SCREENS
Ronningen-Petter Co.

STRAINERS
Elliott Company, Inc.
Ronningen-Petter Co.

STRETCH TESTER
Testing Machines, Inc.
Thwing-Albert Instrument Co.

STUFF CHESTS
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Moore & White Co.
Shartle Brothers Machine Co.
Valley Iron Works Co.

STUFF BOXES
Kalamazoo Sheet Metal Mfg. Co.

SUCTION BOX COVERS
Appleton Wood Products
Emerson Mfg. Co.
Moore & White Co.
Westinghouse Electric Corp.

SUCTION BOXES
Beloit Iron Works
Black-Clawson Company
Downingtown Mfg. Co.
E. D. Jones & Son Co.
Manchester Machine Co.
Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

SUCTION ROLLS
Beloit Iron Works
Downingtown Mfg. Co.
Manchester Machine Co.

SULPHUR
Texas Gulf Sulphur Co.

SULPHUR BURNERS
Valley Iron Works Co.

SULPHUR DIOXIDE
Virginia Smelting Co.

SUPERCALENDERS
The Appleton Machine Co.
B. F. Perkins & Son, Inc.

SWITCHGEAR
Westinghouse Elec. Corp.

SYNTHETIC LATICES
American Cyanamid Company, Industrial Chemicals Division
B. F. Goodrich Chemical Co.
The Goodyear Tire & Rubber Company
Naugatuck Chemical Division of U. S. Rubber Co.
Nopco Chemical Co.

SYNTHETIC RESINS
American Cyanamid Co., Ind. Chem. Div.
Hercules Powder Co., Inc.
Pennsylvania Ind. Chem. Co.
Rohm & Haas Company

SYPHONS
Poirier Control Company
Shartle Bros. Machine Co.

TAILING SCREENS
Sandy Hill Iron & Brass Works

TAKE OFF UNITS
Dilts Machine Works

TALC
American Cyanamid Company, Industrial Chemicals Division
Vanderbilt Co., R. T.

TANKS
Chicago Bridge & Iron Co.
Graver Tank Mfg. Co.
Kalamazoo Sheet Metal Mfg. Co.
Mahon, R. C., Co.
B. F. Perkins & Sons, Inc.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Stebbins Engrg. Co.

TEARING TESTERS
Thwing-Albert Instrument Co.
Testing Machines, Inc.

TENSILE TESTERS
B. P. Perkins & Son, Inc.
Testing Machines, Inc.
Thwing-Albert Instrument Co.

THICKENERS, DECKERS AND SAVEALLS
The Appleton Machine Co.
Bird Machine Company
Carthage Machine Co.
Chicago Bridge & Iron Co.
Dilts Machine Works
Downingtown Mfg. Co.
Graver Tank & Mfg. Co.
Improved Machinery Inc.
Moore & White Co.
D. J. Murray Mfg. Co.
Ross Paper Machinery Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.
Walker Process Equipment, Inc.

TITANIUM
E. I. du Pont de Nemours & Co.
Titanium Pigment Co.
R. T. Vanderbilt Co.

TOOLS
Walworth Company

TRACTORS AND TRUCKS
Towmotor Corp.

TRANSFORMERS
Moorhead Elec. Machy. Co.
Westinghouse Elec. Corp.

TRANSMISSIONS
Dodge Mfg. Corp.
Jeffrey Mfg. Co.
Link Belt Co.

TRAPS
Crane Co.
Grinnell Company
Johnsen Corporation
Shartle Brothers Machine Co.

TUBE CLEANERS
Elliott Company, Inc.

TUBE MILLS
F. L. Smidth & Co.

TUBES
Aluminum Co. of America
Babcock & Wilcox Co.
Crucible Steel Co.
National Tube Co.

TUBING MACHINES
Dilts Machine Works

TUBING, MECHANICAL
National Tube Co.

TURBINES
De Laval Turbine Co.
Elliott Company, Inc.
General Electric Company
James Leffel Co.
Westinghouse Electric Corp.

UNWINDERS
Dilts Machine Works
Downingtown Mfg. Co.
Egan, Frank W., & Co.
Moore & White Co.
Waldron, John, Corp.

USED EQUIPMENT
Gibbs-Brower Co.
Thomas W. Hall Co.
Moorhead Elec. Machy. Co.
J. J. Ross Company
Ross Paper Machinery Co.
Shartle Brothers Machine Co.

V-BELTS
Dodge Mfg. Corp.
Goodrich, B. F., Company, Inc.

VALVES
Airmatic Valve, Inc.
The Bagley & Sewall Company
Crane Company
DeZurik Shower Co.
Dilts Machine Works
Downingtown Mfg. Co.
Grinnell Company
E. D. Jones & Sons Co.
Magnus Metal Corp.
D. J. Murray Mfg. Co.
Ohio Injector Co.
Powell Valves
Record Fdy. & Mch. Co.
Rockwell Mfg. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.
Walworth Company

VAPOR BARRIER COATINGS
Insul-Mastic Corp. of America

VATS
Beloit Iron Works
Biggs Boiler Works Co.
Black-Clawson Co.
Downingtown Mfg. Co.
Mahon, R. C., Co.
Moore & White Co.
Sandy Hill Iron & Brass Works

VIBRATORS
Cleveland Vibrator Co.

WASHERS
The Bagley & Sewall Company
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Improved Machinery Inc.
Jackson & Church Co.
E. D. Jones & Sons Co.
Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

WASTE TREATING EQUIPMENT
Hungerford & Terry, Inc.
Jeffrey Mfg. Co.
Link Belt Co.
Ronningen-Petter Co.
Walker Process Equipment, Inc.

WATER CONDITIONING
American Cyanamid Co., Industrial Chem. Div.
Calgon, Inc.
General Dyestuff Corp.
Hungerford & Terry, Inc.
National Aluminate Corp.
Palmer Filter Equipt. Co.
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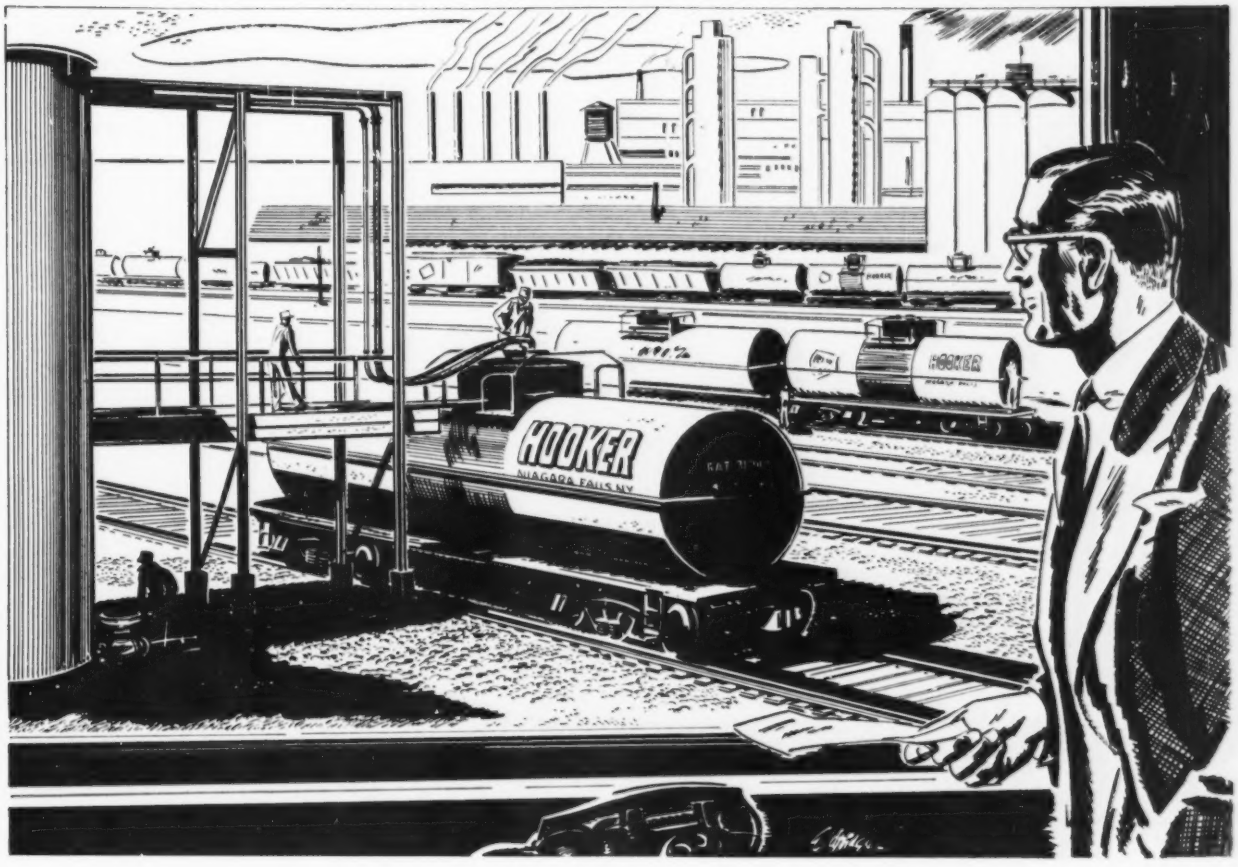

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